



# **Loop-V4300**

## **Mini DACS E1/T1 Converter**

### **USER'S MANUAL**

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- D** Bitte führen Sie das Gerät am Ende seiner Lebensdauer den zur Verfügung stehenden Rückgabe- und Sammelsystemen zu.
- GB** At the end of the product's useful life, please dispose of it at appropriate collection points provided in your country
- F** Une fois le produit en fin de vie, veuillez le déposer dans un point de recyclage approprié.
- E** Para preservar el medio ambiente, al final de la vida útil de su producto, depositelo en los lugares destinados a ello de acuerdo con la legislación vigente.
- P** No final de vida útil do produto, por favor coloque no ponto de recolha apropriado.
- I** Onde tutelare l'ambiente, non buttate l'apparecchio tra i normali rifiuti al termine della sua vita utile, ma portatelo presso i punti di raccolta specifici per questi rifiuti previsti dalla normativa vigente.
- NL** Wij raden u aan het apparaat aan het einde van zijn nuttige levensduur, niet bij het gewone huisafval te deponeren, maar op de daarvoor bestemde adressen.
- DK** Når produktet er udtjent, bør det bortskaffes via de særlige indsamlingssteder i landet.
- N** Ved slutten av produktets levetid bør det avhendes på en kommunal miljøstasjon eller leveres til en elektroforhandler.
- S** Lämna vänligen in produkten på lämplig återvinningsstation när den är förbrukad.
- FIN** Hävitä tuote käyttöiän päättyessä viemällä se asianmukaiseen keräyspisteeseen.
- PL** Gdy produkt nie nadaje się już do dalszego użytku, należy zostawić go w jednym ze specjalnych punktów zajmujących się zbiorą zużytych produktów w wybranych miejscach na terenie kraju.
- CZ** Po skončení jeho životnosti odložte prosím výrobek na příslušném sběrném místě zřízeném dle předpisů ve vaší zemi.
- SK** Po skončení jeho životnosti odovzdajte prosím zariadenie na príslušnom zbernom mieste podľa platných miestnych predpisov a noriem.
- SLO** Ko se izdelku izteče življenska doba, ga odnesite na ustrezno zbirno mesto oziroma ga odvrzite v skladu z veljavnimi predpisi.
- GR** Στο Τέλος της λειτουργικής Ζωής του προϊόντος παρακαλώ Πετάξτε το στα ειδικά σημεία που Παρέχονται στη χώρα σας.
- PRC** 當產品使用壽命結束,請在你的國家所提供的適當地點做好回收處理



### **EMC/EMI:**

**Compliance with : EN 55022 Class A, CISPR22 Class A**

**Compliance with : EN 50082, 50081**

**Compliance with : FCC 15B, Class A**

### **Safety Requirements**

**Compliance with : EN 60950, UL1950, CAN/CSA 22.2 NO. 950**

### **Telecom**

**Compliance with : FCC68, CS-03, CE168X**



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## FCC Requirements, Part 68

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This equipment complies with Part 68 of the FCC rules. On the top cover of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

Loop-V Mini DACS E1/T1 Converter registration number and REN is as follows:

FCC 68 Registration Number: IZITAI-25726-DE-N

REN: 0.0B

### FACILITY INTERFACE CODE FOR DIGITAL SERVICES

CODE	DESCRIPTION
04DU9-BN	1.544 Mbps Superframe Format (SF) without line power.
04DU9-DN	1.544 Mbps SF and B8ZS without line power.
04DU9-1KN	1.544 Mbps ANSI ESF without line power.
04DU9-1SN	1.544 Mbps ANSI ESF and B8ZS without line power.

### SERVICE ORDER CODES FOR DIGITAL SERVICES

CODE	DESCRIPTION
6.0N	Does not provide billing and encoded analog protection. Uses either an integrated or external CSU. Affidavit to telco is required.

Loop-V Mini DACS E1/T1 Converter connect to the network using a RJ48C connector.

If this equipment cause harm to telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in it's facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

Normally, this equipment will be used in conjunction with FCC registered equipment that limits the Encoded Analog Content and provides the required Billing Protection. If the connected equipment is not of this type, an affidavit must be supplied to the telephone company where the network connection is to be made. The affidavit is to be notarized, and is to be filed at least ten days before the initial connection.

If trouble is experienced with this equipment, please contact Loop Telecommunication America Service Facility for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved. All repairs should be handled by authorized Loop Telecommunication Service Personnel. Service can be facilitated through our office at:

Loop Telecommunication International  
8 Carrick Road  
Palm Beach Gardens, FL 33418  
U.S.A.  
(Tel ) 561-627-7947  
(Fax) 561-627-6615  
(e-mail) <JIMBER/0007576940@MCIMAIL.COM>

This equipment cannot be used on telephone company-provided coin service. Connection to Party Line Service is subject to state tariffs.

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## FCC Requirements, Part 15

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This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

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## **Safety Requirements**

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### **IMPORTANT SAFETY INSTRUCTIONS**

**When using your equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:**

- 1. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.**
- 2. Install an AC surge arrestor in the AC outlet to which the Loop Telecom's equipment is connected.**
- 3. This equipment must be connected to an earth socket-outlet.**

**Note: For a DC power unit, please refer to the 1<sup>st</sup> instruction ONLY.**

**Save these instructions**

### **IMPORTANTES MESURES DE SÉCURITÉ**

**Certaines mesures de sécurité doivent être prises pendant l'utilisation de matériel afin de réduire les risques d'incendie, de choc électrique et de blessures.**

**En voici quelquesunes:**

- 1. Ne pas utiliser l'appareil près de l'eau, p.ex., près d'une baignoire, d'un lavabo, d'un évier de cuisine, d'un bac à laver, dans un sous-sol humide ou près d'une piscine.**
- 2. Installez une protection contre les pointes de tension alternative dans la prise de courant reliant l'équipement de Loop Telecom.**
- 3. Cet équipement doit être branché à une prise reliant la terre.**

**Note: Pour une unité à courant continu, référez-vous SVP à la première instruction.**

**Gardez ce mode d'emploi à portée de main**

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## National Electrical Code Requirements

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The Loop-V Mini DACS E1/T1 Converter is ITS Testing Laboratories certified to be in compliance with the Underwriters Laboratories (UL) 1950 Telephone Equipment Standard. The ITS control number is 75425.

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## DOC CS-03 Requirements

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**NOTICE:** The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, user should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alternations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

User should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

**Caution:** User should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The **Load Number** (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Number of all the devices does not exceed 100.

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## **CSA 22.2 Requirements**

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The Loop-V Mini DACS E1/T1 Converter is ITS Testing Laboratories certified to be in compliance with Canadian Standards Association (CSA) Std 22.2 No. 225 Telephone Equipment Standard. The ITS control number is 75425.

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## **Compliance**

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Loop-V Mini DACS is designed to meet the following standards:

- **AT&T TR 54016 Requirements for interfacing digital terminal equipment to services employing the extended superframe format.**
- **AT&T TR 54019 International ACCUNET® digital services description and network interface specifications.**
- **AT&T TR 54019A Addendum to TR54019.**
- **AT&T TR 62411 ACCUNET®T1.5 service description and interface specification.**
- **ANSI T1.403-1989 Carrier to customer installation - DS1 metallic interface.**

# 1. PRODUCT DESCRIPTION

## 1.1 Description

Loop-V4300 Mini DACS E1/T1 converter provides both DS0 and n\*64 Kbps cross-connect between any T1 and E1 ports and E1 to T1 format conversion functions. E1 to T1 conversion include line format, A law to  $\mu$  law conversion, and signaling bits association. Loop-V4300 supports DTE port operating from 56 Kbps to 1984 Kbps, This unit is suitable for applications involving 2 to 4 ports. Loop-V4300 also supports inband Management, where management data is carried the same way as user data, traversing national networks.

## 1.2 Physical Description

The Mini DACS is available as a stand-alone desk-top unit which can be rack-mounted. The Mini DACS is available in 20-72 Vdc or 100-240 Vac powering.

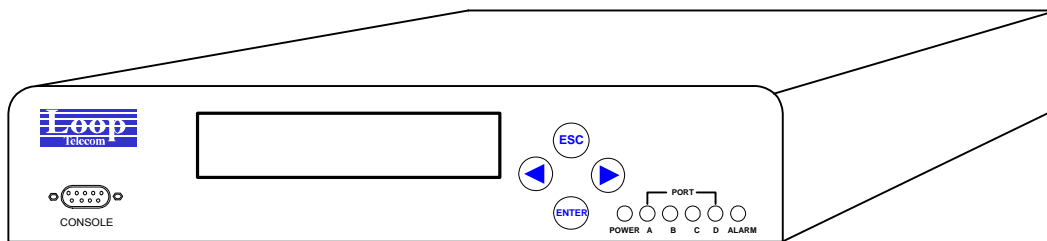
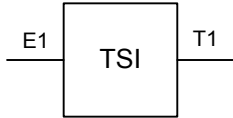


Figure 1 - 1 Pictorial of Mini DACS Series Products

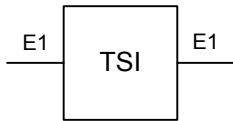
## 1.3 Applications

The mini DACS series application example is illustrated in the following figures.

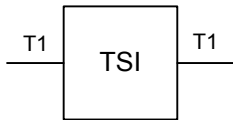
### A: 2 links



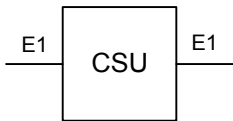
**A1: E1/T1 converter (24 TS)**



**A2: E1 LTU with TSI**

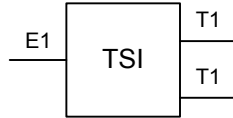


**A3: T1 CSU with TSI**

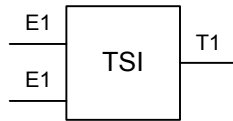


**A4: ICSU**

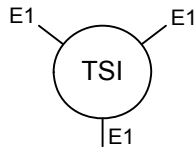
### B: 3 links



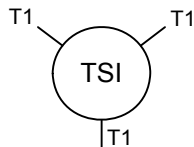
**B1: E1/T1 converter (31 TS) and DACS**



**B2: E1/T1 converter and DACS**

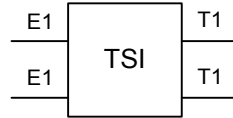


**B3: E1 DACS**

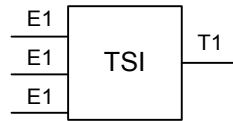


**B4: T1 DACS**

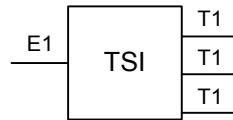
### C: 4 links



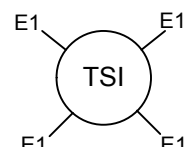
**C1: Dual E1/T1 converter and DACS**



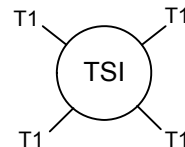
**C2: E1/T1 converter and DACS**



**C3: E1/T1 converter and DACS**



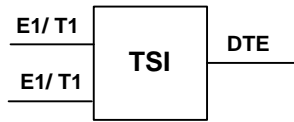
**C4: E1 DACS**



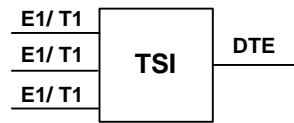
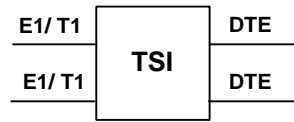
**C5: T1 DACS**

## Chapter 1 Product Description

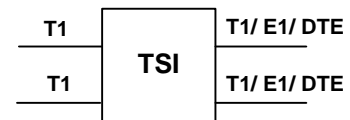
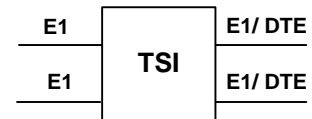
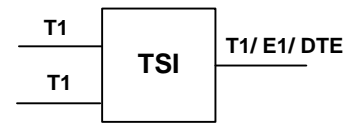
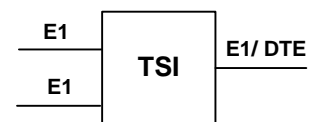
### B: 3 links



### C: 4 links



### 1 for 1 Protection





## 1.4 Specification

### **Network Line Interface (E1)**

Line Rate	2.048 Mbps $\pm$ 50 ppm
Line Code	AMI / HDB3
Input Signal	ITU G.703
Framing	ITU G.704
Connector	BNC/RJ48C
Output Signal	ITU G.703
Electrical	75 $\Omega$ Coax/120 $\Omega$ twisted pair

### **Network Line Interface (T1)**

Line Rate	1.544 Mbps $\pm$ 32 ppm
Line Code	AMI / B8ZS
Input Signal	DS-1 from 0 dB to -26 dB w/ALBO
Surge Protection	FCC Part 68 Sub-Part D
Framing	D4/ ESF/ ESF&T1.403/ NONE (Clear Channel)
Connector	RJ48C
Output Signal	DSX-1, DS-1
Pulse Template	Per AT&T TR 62411

### **DTE Interface (V.35)**

Data Rate	n x (56 or 64) Kbps (n = 1 - 31)
Connector	DB25S for V.35

### **Performance Monitor**

Performance Store	E1: Last 24 hours performance in 15 minutes interval register and last 7 days in 24 hours summary T1: The last 24 hours performance in 15-minute intervals
Monitor Registers	E1: Line, user T1: Line, user
Performance Reports	E1: Reports include Date&Time, Error Second, Unavailable Second, Bursty Error Second, Severe Error Second, Degraded Minutes, and Controlled Slip Second. Also available in Statistics (%) T1: Reports include Date&Time, Error Second, Unavailable Second, Bursty Error Second, Severe Error Second, Controlled Slip Second, and Loss of Frame Count
Alarm History	Reports include Date&Time, Alarm Type (i.e. Master Clock Loss, Yellow Alarm, AIS, LOS, BPV, ES, CSS), and Location (i.e. line, PORT A, B, C, D )
Alarm Queue	Contains 40 alarm records which record the latest alarm type, location, and Date&Time

### **Alarm Relay**

Alarm Relay	Normally closed Fuse alarm and performance alarm
-------------	---

### **Protection**

1 for 1	Port B can be configured to protect Port A
---------	--

## Chapter 1 Product Description

### **Network Management**

#### **Console Port**

Connector DB9 at Front Panel  
Electrical RS232 interface  
Protocol Menu driven VT-100 terminal

#### **Ethernet Port**

Connector RJ45 in rear  
Protocol Telnet (VT100) and Embedded SNMP

#### **Voice Channel Conversion**

A-law to  $\mu$ -law G.711  
Signaling bits ABCD are converted using user configurable conversion table

#### **Inband Management**

Any 64 Kbps DS0 can be assigned for management  
Management Protocols: HDLC

#### **Diagnostics Test**

Loopback Line Loopback, Payload Loopback, Local Loopback, and DTE Loopback

#### **Front Panel**

Keypad 4 keys: left arrow, right arrow, ESC, and ENTER  
LCD 2-line by 16-character  
LED 6: Power, Port A, Port B, Port C, Port D, Alarm

#### **Physical/Electrical**

Dimensions 22.5 x 4.5 x 20 cm, 8 <sup>7</sup>/<sub>16</sub>" x 1 <sup>3</sup>/<sub>4</sub>" x 7 <sup>7</sup>/<sub>8</sub>" (WxHxD)  
Temperature range 0°C -50°C  
Power 20-72 Vdc / 100-240 Vac, 50/60 Hz, 10 Watts  
Fuse 250V, 800mA  
Humidity 0%-95% RH (non-condensing)  
Mounting Desk-top stackable, 19/23 inch rack mountable, two units side-by-side

## 2. INSTALLATION

### CAUTION:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch un-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

### 2.1 Site Selection

The following are guidelines for site selection. These guidelines must be followed to ensure a proper installation site.

- The installation site should have an AC power receptacle or 20-72 Vdc supply as appropriate.
- The installation site should provide space for adequate ventilation and cable routing. Reserve at least 5 inches at the rear of the unit for cables and air flow.
- The site should provide a stable environment. The operating area should be clean and free from extremes of temperature, humidity, shock, and vibration.
- Relative humidity should stay between 0 and 95% non-condensing. Do not operate the unit at altitudes greater than 3500m (10,000 feet).

### 2.2 Mechanical and Electrical Installation

Loop-V4300, as a desk top unit, is stackable. The front panel is shown in Figure 2-1, and the rear panel is shown in Figure 2-2. For rack mounting, the Mini DACS can be mounted 1 or 2 units per 1U rack space.

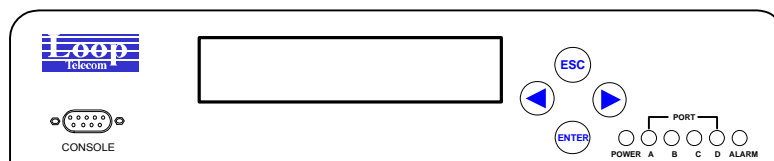


Figure 2- 1 Front Panel

Chapter 2 Installation

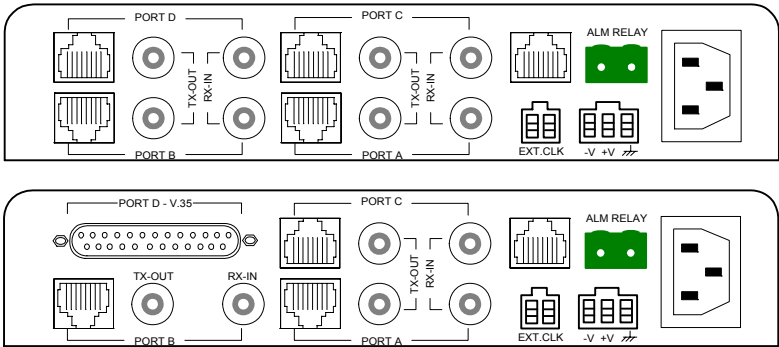


Figure 2- 2 Rear Panels

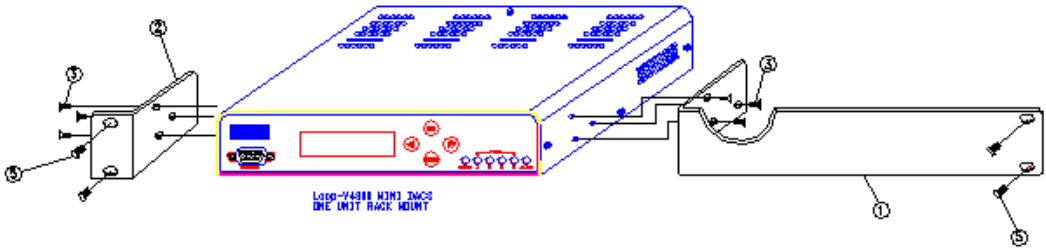


Figure 2- 3 Installation Diagram (Single)

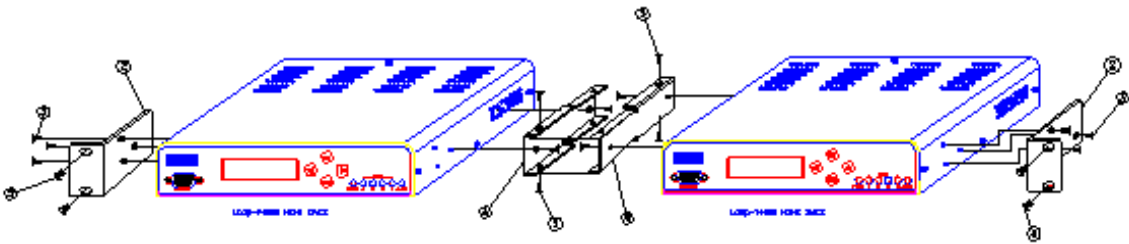



Figure 2- 4 Installation Diagram (Double)

## Chapter 2 Installation

### 2.2.1 Electrical Installation

Either AC power or DC power will be used, depending on the model ordered. Power connection is at the rear panel. For the AC model, a power cord is supplied. For the DC model, 20-72 Vdc power is via a 3-pin terminal block as list in Table 2-1 below.

**Table 2- 1 Power Connector**

Pin Number	Signal	Description
1	-V	-DC
2	+V	+DC
3		Chassis Ground

For connection to a VT-100 type terminal for maintenance and administration, a console port with DB9 connector is located on the front panel. The RJ45 connector at the rear panel is for an Ethernet connection. The console port is configured as a DCE device with a DB-9 female connector. Pin definitions and pin connections are listed in Table 2-2 below.

**Table 2- 2 Console Port**

Pin Number	Signal	Source
1	Data Carrier Detect	To DTE
2	Receive Data	To DTE
3	Transmit Data	From DTE
4	Unassign	
5	Signal Ground	
6	Data Set Ready	To DTE
7	Unassign	
8	Clear to send	To DTE
9	Unassign	

Ethernet port can be connected via Ethernet 10Base-T interface. Pin definition is listed in Table 2-3.

**Table 2- 3 Ethernet Port**

Pin Number	Signal	Description
1	TPTX+	TP Driver Output
2	TPTX-	
3	TPRX+	TP Receive Input
6	TPRX-	
7	Chassis GND	
8	Chassis GND	

There is a network line connection for each of the 4 ports, using a RJ 45 connector, and in the case of E1, a pair of BNC connectors is also provided. The line interfaces are labeled with PORT-A, PORT-B, PORT-C, and PORT-D. Connector pin definition is listed in Table 2-4 below.

## Chapter 2 Installation

**Table 2- 4 RJ 45 Line Connector**

Pin Number	Signal	Signal Direction
1	Receive Tip	Input to 4300
2	Receive Ring	Input to 4300
4	Transmit Tip	Output from 4300
5	Transmit Ring	Output from 4300
7	Chassis GND	
8	Chassis GND	

**Table 2- 5 V.35/DB25 DTE Port Pin Definition**

Pin Number	Signal	Source
1	Cable Shield	
2	Transmit Data	DTE
3	Receive Data	DCE
4	Request To Send	DTE
5	Clear To Send	DCE
6	Data Set Ready	DCE
7	Signal Ground	
8	Data Carrier Detect	DCE
9	Receive Clock Return	DCE
10	Unassigned	
11	External Clock Return	DTE
12	Transmit Clock Return	DCE
13	Unassigned	
14	Transmit Data Return	DTE
15	Transmit Clock	DCE
16	Receive Data Return	DCE
17	Receive Clock	DCE
18	Local Loopback	DTE
19	Unassigned	
20	Data Terminal Ready	DTE
21	Remote Loopback	DTE
22	Unassigned	
23	Unassigned	
24	External Clock	DTE
25	Test Mode	DCE

### 2.2.2 Changing the line connector choice for the E1 ports

Normally the choice for the E1 connector, balanced 120 ohm or unbalanced BNC 75 ohm, is installed at the factory according to the customer order. Users can change this choice by opening the case and changing the jumper pins as indicated in the following tables and figures.

**Table 2- 6 Jumper Setting for Main Board**

Jumper of Port A	E1	E1	T1
	BNC (75 ohm)	RJ (120 ohm)	RJ (100 ohm)
JP11	1, 2	2, 3	2, 3
JP12	1, 2	2, 3	2, 3
JP13	1, 2	2, 3	2, 3
JP15	1, 2	2, 3	2, 3
JP 9	2, 3	1, 2	OFF
JP16	2, 3	1, 2	OFF
JP17	ON	ON	OFF
JP18	ON	OFF	OFF

Jumper of Port B	E1	E1	T1
	BNC (75 ohm)	RJ (120 ohm)	RJ (100 ohm)
JP21	1, 2	2, 3	2, 3
JP22	1, 2	2, 3	2, 3
JP23	1, 2	2, 3	2, 3
JP25	1, 2	2, 3	2, 3
JP19	2, 3	1, 2	OFF
JP26	2, 3	1, 2	OFF
JP27	ON	ON	OFF
JP28	ON	OFF	OFF

**NOTE:** User can change between E1 75ohm and E1 120ohm by changing jumpers.  
User cannot change between T1 and E1 by changing jumpers.

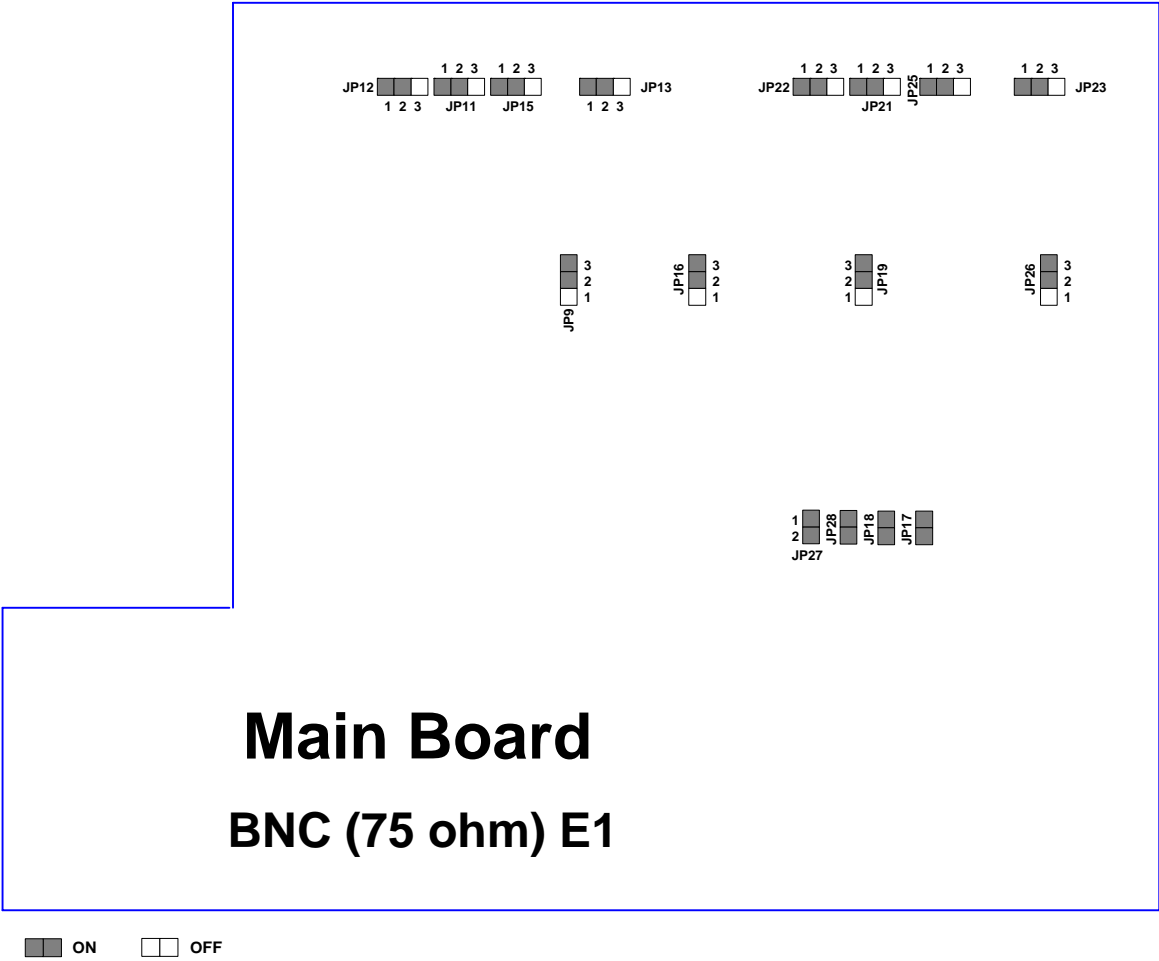
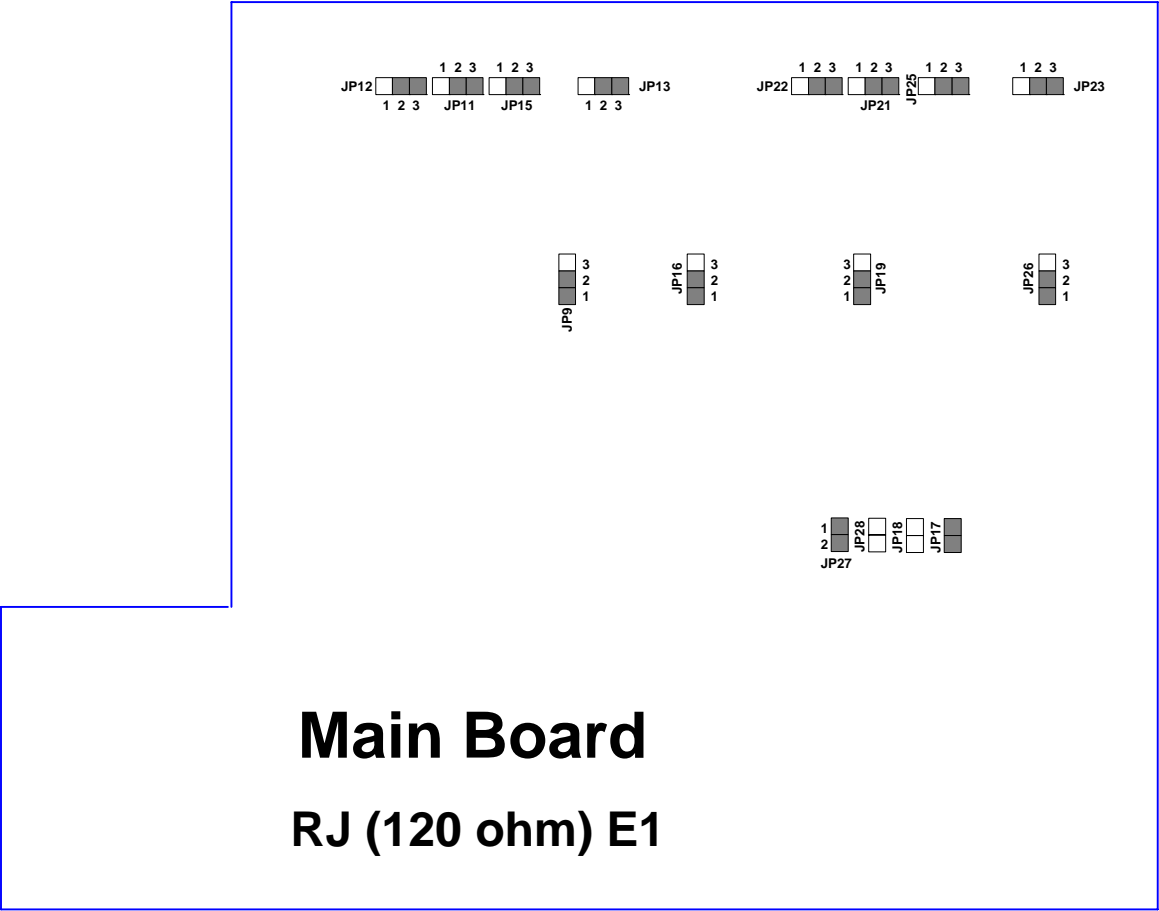


Figure 2- 5 Main Board Jumper Setting - BNC (75 ohm) E1





■ ■ ON    □ □ OFF

Figure 2- 6 Main Board Jumper Setting – RJ (120 ohm) E1

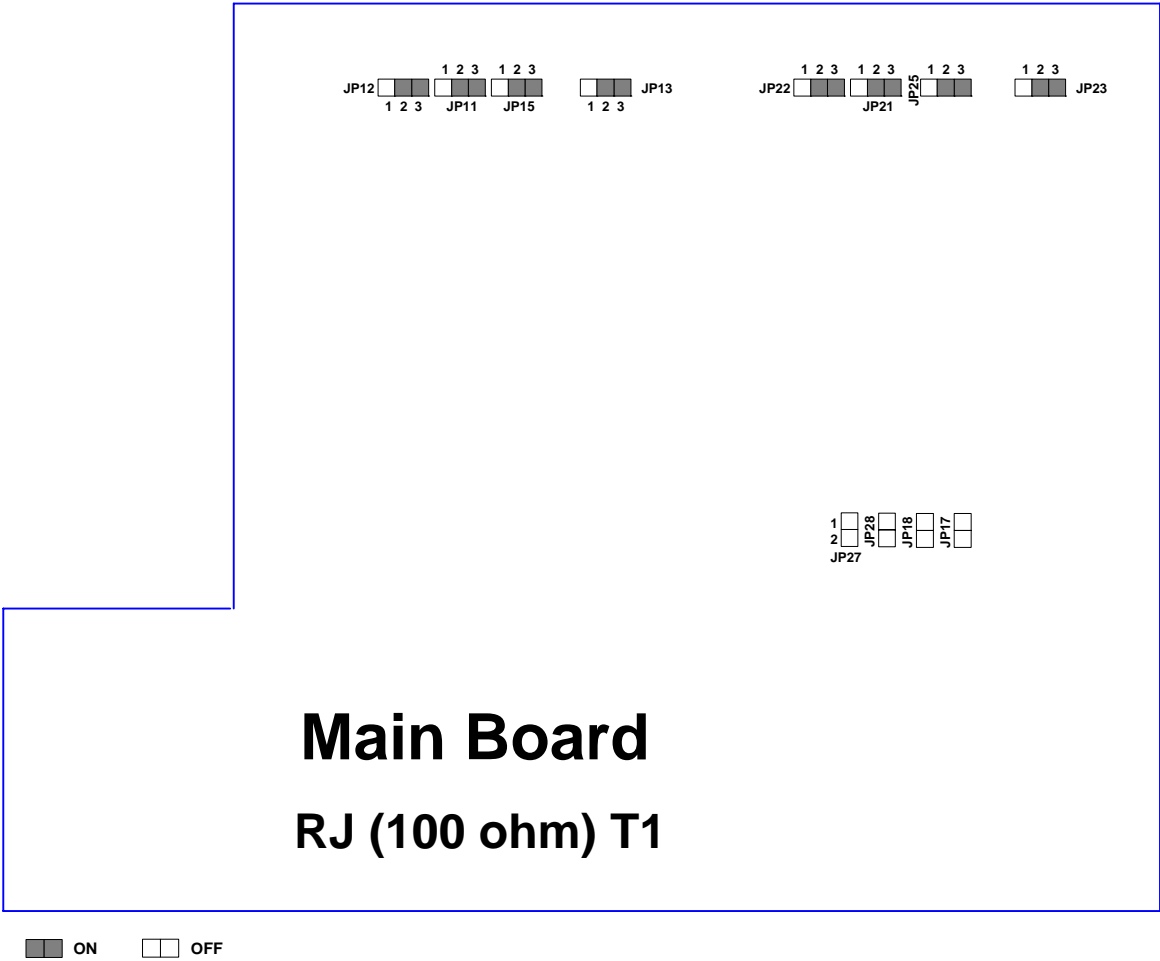


Figure 2- 7 Main Board Jumper Setting - RJ (100 ohm) T1

Chapter 2 Installation

Table 2- 7 Jumper Setting for Daughter Board

Jumper of Daughter Board	E1	E1	T1
	BNC (75 ohm)	RJ (120 ohm)	RJ (100 ohm)
JP4	1, 2	2, 3	2, 3
JP5	1, 2	2, 3	2, 3
JP6	1, 2	2, 3	2, 3
JP8	1, 2	2, 3	2, 3
JP2	2, 3	1, 2	
JP9	2, 3	1, 2	
JP10	OFF	ON	OFF
JP11	ON	OFF	OFF

**NOTE:** When BNC connector is selected, the user has the option of grounding the received BNC shield by installing a jumper clip on the jumper location. **This is usually not necessary, but if you have any noise on your device it can often be filtered out by using this grounding process.**

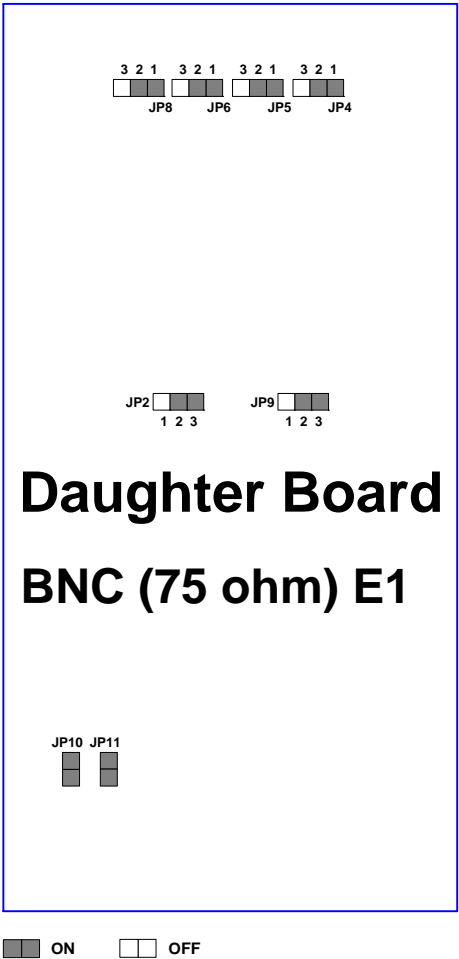


Figure 2- 8 Daughter Board Jumper Setting - BNC (75 ohm) E1

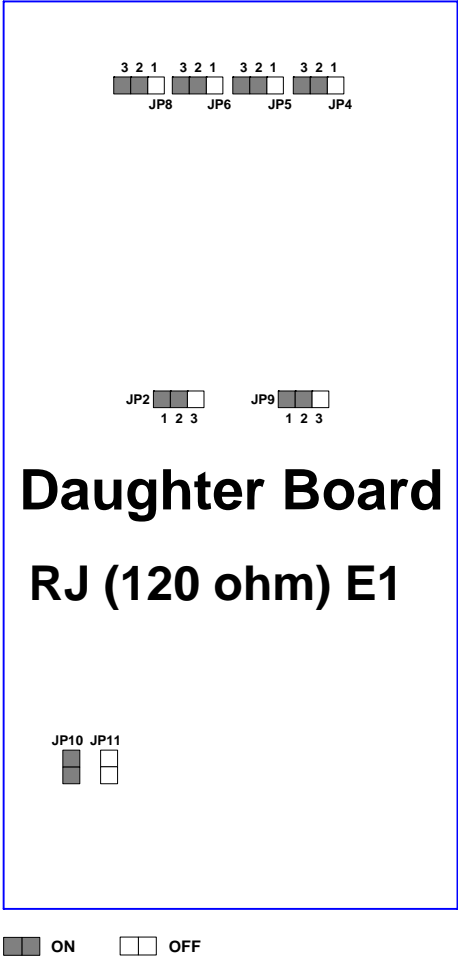


Figure 2- 9 Daughter Board Jumper Setting – RJ (120 ohm) E1

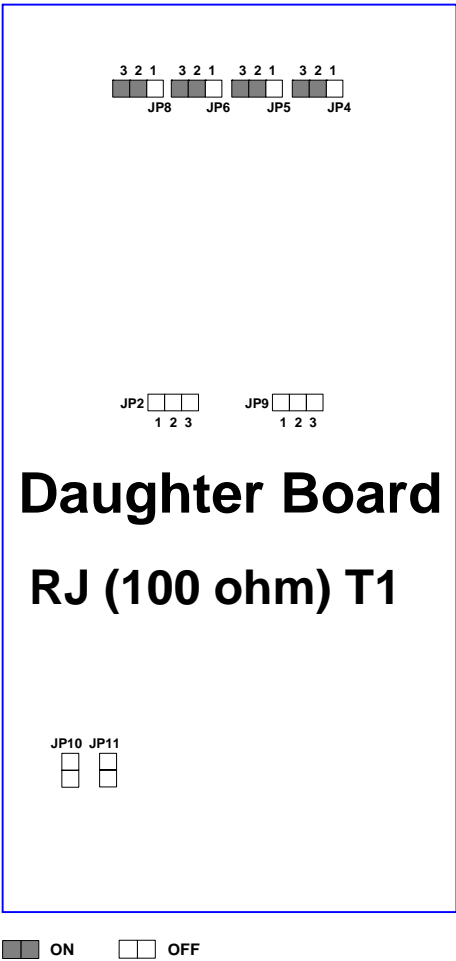


Figure 2- 10 Daughter Board Jumper Setting - RJ (100 ohm) T1

### 2.3 Configuration Setting

#### 2.3.1 Hardware Configuration Setting

The only user modifiable hardware configuration is the choice of balanced or unbalanced interface for E1 lines. If the factory setting, which can be specified on the order, needs to be changed, the user must open up the case and move some jumper on the printed circuit board. See previous section for details. All other configurations are software programmable. No DIP switches are used.

#### 2.3.2 Software Configuration Setting

There are three system configurations:

- Factory default
- Current working
- User-stored

Factory default configurations are not changeable. Each series is shipped with a factory default configuration.

The current working configuration can be changed at any time. The system automatically stores the current working configuration into nonvolatile memory. When the system is turned off and then turned back on again, the working configuration used before power was turned off is retrieved as the current working configuration.

The current working configuration may also be saved into nonvolatile memory as a user-stored configuration. The user-stored configuration may be retrieved at any time. Retrieving the user-stored configuration overwrites the current working configuration. The user can view the stored unit configuration using the terminal command "C" before retrieving it.

There are 2 ways to restore the Mini DACS to the factory default configuration. The first way is the N command via the VT-100 terminal. The second way is as follows:

- o During power-up and LCD display "ESC", press the ESC key.
  - o Press ENTER while "RET" is being displayed on the LCD.
  - o Verify that LOAD DEFAULT CONFIGURATION is being displayed on the front panel to indicate that the operation was successful.

## Chapter 2 Installation

Table 2- 8 Default Software Configuration

Console Port	Default
Baud Rate	9600
Data Bit	8
Stop Bit	1
Parity Bit	NONE
XON-XOFF	OFF

T1 Line Items	Default
Interface	Long Haul
Frame Format Mode	ESF
Line Code Mode	B8ZS
EQU	0 dB
Yellow Alarm	ON
Inband Signaling	OFF
AIS	FRAME
CAS	OFF
CGA	NORM
OOS	BUSY
Idle Code	FF

E1 Line Items	Default
Frame	FAS
Line Code Mode	HDB3
CRC	ON
RAI	ON
AIS	FRAME
CAS	OFF
CGA	NORM
OOS	BUSY
Idle Code	D5

DTE (V.35) Items	Default
Rate	64 K
Clock	Normal
Data	Normal
RTS	Active
TTM	OFF

## Chapter 2 Installation

Alarm Thresholds	Default
Alarm Enable	Disable
Alarm Display	Disable
BPV, Line	10E- 5
ES, Line	1
UAS, Line	1
CSS, Line	1

Miscellaneous Items	Default
TSI MAP	all idle
Master Clock	Port A
2nd Clock	Port A
Password lock	Disable
External Clock	2.048 MHz
Password	LOOP
Device Name	LOOP-V-01



### 3. OPERATION

This chapter describes the E1/T1 Converter configuration options and operational functions. User should refer to the FRONT PANEL OPERATION and the TERMINAL OPERATION for detailed operational procedures.

#### 3.1 Quick Start for E1/T1 Converter

After installation, the user may want to familiarize with the equipment immediately. The following abbreviated instructions will give the user a quick start.

##### 3.1.1 Power On

Turn power on by attaching power cable at the rear of the unit. On the LCD, unit will first display followed by the main menu.

##### 3.1.2 Return to Default Setting

The unit is shipped with factory default setting.

To restore to factory setting in the future, immediately after power on, and during the display of "ESC" on the LCD, press ESC key followed by pressing ENTER when "RET" is displayed. Unit will confirm with LOAD DEFAULT CONFIGURATION.

##### 3.1.3 Using Front Panel

To use the front panel to configure the unit, use the four keys to the right of the LCD. The menu is tree structured, with the main menu at the root of the tree. The ESC key brings the user towards to the root. The ENTER key is used (a) to descend to branches of the menu, or (b) to confirm a selection. The left and right arrow keys are used to change the selection.

###### 3.1.3.1 Review of Default Settings

Most of the default settings can be reviewed or changed. This is done by selecting the menu item. Either a sub-menu is shown or the selected setting is indicated with an asterisk.

###### 3.1.3.2 Line Interface Selection

After power up, the main menu is shown with the CONFIGURATION. Press ENTER to go to PORT sub-menu, which allows selection of the line, PORT-A, PORT-B, and if equipped, PORT-C and PORT-D. Use arrow keys to select the unit. Then press ENTER. Under the PORT menus, further sub-menus can be selected.

##### 3.1.4 Using Terminal

To use the RS232 interface to configure the unit, connect a VT-100 terminal to the DB-9 jack on the front panel. The VT-100 terminal can be a PC running a VT-100 emulator software. The unit is configured as a DCE.

Upon connection, press ENTER and ESC alternately to bring the main menu into view.

Press O (Log On) to see the full menu.

Press S (System Setup) to review or change the configuration or Press N to go to the system default configuration.

### 3.1.4.1 Review of Default Settings

The entire configuration is shown when S is pressed. To change any setting, use the arrow keys to move to the target setting. Then press the TAB key repeatedly to cycle to the desired setting for any selected parameter.

### 3.1.4.2 Line

Use arrow keys to move cursor to the target PORT. Then use TAB key to change the parameter setting. When satisfied, press ESC. Confirm with Y (yes).

### 3.1.4.3 Map Setup

Use arrow keys to move cursor to the target MAP parameter. Then use TAB key to change the parameter setting.

When satisfied, press ESC. Confirm with Y (yes).

## 3.2 System Operation

The Loop-V4300 provides for the configuration of the unit and each of the line ports, diagnostics, alarm, performance, and miscellaneous control and data retrieval facilities. Because these facilities are available from the front panel, a VT100 terminal attached to the console port, or remotely by SNMP, this chapter will discuss the available options in general while subsequent chapters will discuss the specific use of either the front panel or the VT100 terminal.

## 3.3 Configurations

In addition to configuring the line parameters of each port, the following groups of items needs to be configured: master clock, TSI map, save and restore, date and time.

### 3.3.1 DS1 Network Line Parameters

A detailed option list of E1/T1 PORT configuration is provided in the previous chapter. The following paragraphs will describe each item.

#### 3.3.1.1 Frame Format

For the E1 line interface, the frame format is fixed according to ITU G.704, also termed FAS. For the T1 line interface, either D4 or ESF frame format is available. In the ESF frame format mode, the user can choose either the AT&T or ANSI facility data link protocol. ESF & T1.403 chooses ANSI ESF data link protocol and one second performance report will be sent to the network every second automatically. Also, ANSI and AT&T data link message is acceptable in ANSI ESF frame format mode. However, AT&T ESF frame format mode only accept AT&T ESF data link protocol.

#### 3.3.1.2 Line Code

For the E1 line interface, either AMI (Alternate Mark Inverting) or HDB3 (high density bipolar of length 3) line code format can be chosen. For the T1 line interface, either AMI (Alternate Mark Inverting) or B8ZS (bipolar with 8 zero substitution) line code format can be chosen.

#### 3.3.1.3 RAI / YEL

Remote Alarm Indication, or Yellow alarm in T1 parlance, transmits a return signal back out to indicate loss of signal and loss of frame sync at the receiving side of the port. This action can be turned ON or OFF.

## Chapter 3 Operation

Normally, when the yellow alarm is turned ON for a port, that port will activate the alarm dependent on the received signal and independent of other ports. In certain network architectures, it may be desirable to relay the yellow alarm from one port to another port. This option is available for the user. For example, the user may want the Loop-V4300 to repeat the yellow alarm received on Port A to be sent out at the output of Port B.

### 3.3.1.4 CRC - E1

For two frame mode, set CRC to OFF. For multiframe mode, set CRC to ON.

For E1, the cyclic redundancy check function can be turned ON or OFF. Unlike bipolar violation, which can monitor only one span, CRC allows error monitoring through multiple spans of DS0 lines. For T1, the CRC function is embedded in the ESF frame format, which if chosen, is always on.

### 3.3.1.5 AIS

AIS, alarm indication signal, notifies the far end that a loopback and diagnostic test are in progress. Thus customer signals are blocked. The AIS can be sent two ways. In the framed mode, all channels will have all ones sent but the framing pattern will be preserved. In the unframed mode, all ones are sent for all time slots.

When all ones are sent in both directions for a given port, due to the TSI (time slot interchange) within the Loop-V4300, the corresponding channels in other ports will also have all ones.

### 3.3.1.6 A-law to $\mu$ -law Conversion

When time slot from E1 is assigned to time slot in T1, A-law to  $\mu$ -law conversion is automatic if both are designated as voice channel.

### 3.3.1.7 CAS

For voice channels, the signaling information, which included signals such as on-hook, and ringing, can be carried by two methods. One is by a completely independent channel managed by the system operator, in which case no action is needed by the local equipment (CAS is OFF). Another is by CAS where the signaling information is carried in the same bit stream as the voice channel. In this second method, for time slot interchange, the signaling bits must be routed along with the voice channels to the proper destination. Thus the Loop-V4300 must be told, when CAS is used, to turn the CAS option to ON.

For E1, CAS (Channel-Associated Signaling) is a method for sending signaling information where time slot 16 of the E1 format is shared for each of 30 other time slots within the same E1. OFF designation is for CAS disabled. For E1, when disabled, the 256N multiframe is used when time slot 16 is available to the user. The maximum number of time slots available for payload is 31. ON designation is for CAS enabled. When enabled, the 256S multiframe is used when time slot 16 is reserved for the transmission for end-to-end signaling using CAS. The maximum number of time slots available for payload is then 30.

For T1, CAS when ON is where "robbed-bit signaling" takes place. This places the signaling information, once every 6 frames, in bit 7 (least significant bit) of the associated time slot, replacing the information bit at that location. When CAS is OFF, robbed-bit signaling will not take place. When ON, robbed-bit signaling is permitted for voice channels. For channels designated as DATA, robbed-bit signaling is not performed.

### 3.3.1.8 Interface

The T1 can be long haul or short haul. Long haul has higher powered output to drive long lines, while short haul is more appropriate for intraoffice connections.

### 3.3.1.9 Signaling Conversion

Loop-V4300 supports user configurable conversion table. ABCD bits can be converted from one combination into any other combination as defined by the table.

### 3.3.1.10 Equalization

Whether long haul or short haul, for T1, further refinements of the output signal can be made using the EQU controls. For long haul, the choices are in dB of inserted loss. For short haul, the choices are in equivalent distances of inserted loss.

### 3.3.1.11 Facility Data Link

Whereas for T1, the FDL (facility data link) is part of the ESF structure, for E1, this is not part of the standard.

### 3.3.1.12 Carrier Group Alarm

Carrier Group Alarm, CGA, is necessary for proper operation of the switched network in the face of possible faults of the transport system. In the "normal" option, when a carrier facility fails, the switching system must be notified so that it should cease to use that facility until repair is made. In the "transparent" option, the signaling bits are left alone in fault conditions.

### 3.3.1.13 Out Of Service Signaling

For normal CGA option, when failure of the facility occurs, if there are calls in progress, the billing system should be notified to stop charging the customer at the time of facility failure. Loop-V4300 provides several idle/busy sequences to suit the network needs.

### 3.3.1.14 Idle Code

Any DS0 channel, which is not assigned, is an idle channel. An idle code is transmitted on idle DS0 channels. Users may program the idle channel to any bit pattern from 0x00 to 0xFF. (The prefix 0x is to indicate hex notation.)

NOTE: Due to ones-density requirement, it is advised that idle code to be set as 0xD5 for E1 and 0xFF for T1, which are the factory defaults. Else, user must program idle code to contain at least two bits of '1'.

### 3.3.1.15 Line Configuration Summary and Default Settings

The following tables list the options available and their factory default settings.

**Table 3 - 1 E1 Line Default Setting**

Item	Options	Default
Frame Format Mode	FAS	FAS
Line Code Mode	AMI, HDB3	HDB3
RAI	ON, OFF, ON+A, ON+B, ON+C, ON+D (ON+self has no meaning)	ON
CRC	ON, OFF	ON
AIS	Frame, Unframe	Frame
CAS	ON, OFF	OFF
CGA	Norm, Trans	Norm
OOS	Busy, Idle, Busy-Idle, Idle-Busy,	Busy
Idle Code	0x00 ~ 0xFF	0xD5

## Chapter 3 Operation

**Table 3 - 2 T1 Line Default Setting**

Item	Options	Default
Frame Format Mode	D4, ESF , ESF&T1.403	ESF
Line Code Mode	AMI, B8ZS	B8ZS
Yellow Alarm	ON, OFF, ON+A, ON+B, ON+C, ON+D (ON+self has no meaning)	ON
Inband Signaling	ON, OFF	ON
AIS	Frame, Unframe	Frame
CAS	OFF, ON	OFF
Interface	Long haul, Short haul	Long haul
Equalization Line Build Out	Long haul: 0, -7.5, -15 dB Short haul: 0-133, 133-266, 266,399, 399-533, 533-655	0
CGA	Norm, Trans	Norm
OOS	Busy, Idle, Busy-Idle, Idle-Busy,	Busy
Idle Code	0x00 - 0xFF	0xFF

### 3.3.2 Master Clock

When the primary clock source is lost, the system will automatically switch to the secondary clock source. This is to provide an alternative clock source when the primary clock source is lost. The system will automatically switch from the second clock back to the primary clock sixty seconds after it returns. The default master and 2nd clock source are the PORT\_A network clock. The current active clock source is shown by the LCD "MCLK" command and terminal "S" and "C" commands.

NOTE: If a 2nd clock source is not available, the user may set the 2nd clock and master clock source to the same value or select NONE as the second clock source. If the 2nd clock source is lost as well, Loop-V4300 will automatically switch to the internal clock source. Loop-V4300 will automatically switch back to the master or 2nd clock source when it returns.

### 3.3.3 TSI Map

One primary function of the Loop-V4300 unit is time slot interchange (TSI), also known as digital signal cross-connect (DSX), where each DS0 channel of any line can be assigned to any DS0 channel of any other line. The assignment table is called a map. A map contains the DS0 channel assignments of all channels for all lines. An idle code is transmitted on all unused channels. The default DS0 channel assignment of all ports is idle channel.

NOTE: For E1 network interface with HDB3 coding or T1 network interface with B8ZS coding all remote DTE ports with 56 Kbps, all channels are available for any DS0 assignment, data or voice. However, for either network interface with AMI coding, user should assign only alternate odd or even DS0 channels for 64 Kbps data. This is to guarantee one's density requirement.

In addition to setting channel assignments, the user must also select the signaling format used for each of the lines and indicate the channel type for each channel. Signaling format can be CAS (channel associated signaling) or non-CAS, which assumes that CCIS (common channel interoffice signaling) is taken care of elsewhere. In the case of CAS, the E1 format uses channel 16 for that purpose, thus this channel is not available for assignment. The channel type can be data or voice. In the case of voice, the coding scheme,

## Chapter 3 Operation

A-law for E1 and  $\mu$ -law for T1, will be converted as well. In addition, for CAS, T1 uses robbed bit signaling while E1 uses channel 16. The A, B, C, and D bits of CAS will be translated between E1 and T1 transparently. That is A=0 from E1 becomes A=0 from T1, etc., to D=1 from T1 becomes D=1 to E1.

**NOTE:** To avoid certain data entry errors when assigning TSI channels, the user must first set the affected channels to idle. Then assign those channels. Else, a warning of channel assignment overwrite will appear.

Because of the complexity of the TSI Map, the front panel LCD operation would only allow for the display of the map. To set the TSI Map initially, a VT100 terminal, or a central control using SNMP must be used.

### 3.3.4 1 for 1 Protection

1 for 1 protection is only supported for Port B protecting Port A with same type of plug-ins, E1 or T1. Port A is normally the working port and Port B the standby port. When these alarms (LOS, LOF, or YEL/ RAI) are declared for Port A, traffic will be switched to Port B. The time for system declares alarm is about 2.5 sec  $\pm$  0.5, the time for system enable 1 for 1 protection is under 50 ms.

Restoration is either automatic or manual. When automatic, when Port A is repaired, traffic will automatically switch back to Port A. When manual, traffic will not switch until a manual command. Restoration, whether automatic or manual, should be consistent on both sides of the protected line pair.

### 3.3.5 Save

The current configuration can be SAVED in the "user-stored" configuration memory for later use by the RESTORE command. The "current -working" configuration is not affected.

### 3.3.6 Restore

The current configuration can be replaced by the "user-stored" configuration by the RESTORE command. The last "current-working" configuration is lost.

### 3.3.7 Console Parameters

In this set of commands, the communications parameters for the VT100 console port can be set. The parameters are baud rate, data length, stop bits, parity, and flow control (Xon-Xoff).

### 3.3.8 Date & Time

The current date and time of the unit can be set with these commands.

## 3.4 DTE Configuration

### 3.4.1 Rate

DTE port can operate at n x 56 or n x 64 Kbps.

### 3.4.2 Clock Polarity

Clock polarity of DTE port is either normal or inverted and is used to drive the transmit data and to sample the receiving data.

### 3.4.3 Data Polarity

Data polarity of DTE port is either normal or inverted which is used as positive logic or negative logic respectively.

### 3.4.4 RTS

DTE facility can use RTS (Request To Send) to control transmission. When RTS is "ACTIVE" and in off state, all ones are sent to the line side on the DTE port associated B channels. When RTS is "PERMANENT", RTS signal is ignored and assumed to be on permanently.

### 3.4.5 TTM

In the normal condition, Loop-V4300 uses Transmit Clock to sample DTE Transmit Data, which is transmitted from DTE facility. In terminal timing mode, DTE facility uses Receive Clock to drive Transmit Data and loop this clock to Loop-V4300 via External Clock. In this mode, Loop-V4300 will use External Clock to sample Transmit Data instead of using Transmit Clock. This method is to avoid phase delay due to cable length. In other words, if the DTE cable is too long, the transmit data may not in-phase with the Transmit Clock. With this feature, the External Clock and Transmit Data will be in-phase.

## 3.5 Diagnostics

The commands used for system diagnostics, which includes loopback commands, will be discussed in the next chapter on maintenance.

## 3.6 Alarm and Reports

### 3.6.1 Alarms

Loop-V4300 has many types of alarms as listed in Table 3-3. Also, it has alarm queue which record the latest 40 alarms with time stamp. Loop-V4300 also has alarm history and alarm status registers which is used to track the alarm count. Each alarm can be individually enabled or disabled. When disabled, no action is taken. When enabled, alarm counter increments on the occurrence of the specific type of alarm. When alarm occurs or the counter threshold exceeds, alarm is triggered.

When alarm is triggered, the front panel alarm LED will light. The VT100 terminal, if connected, will display the alarm condition. Also, if SNMP is active, notification, via a TRAP message, is sent to the maintenance center. All alarms are disabled by default.

Individual fault counts are updated every second. Bipolar Violation (BPV) counts are updated every second, but the BPV alarm is based on an average Bit Error Rate (BER) that is calculated over a 15-minute interval. Therefore, BPV alarm status is updated every 15 minutes after the average BER is calculated. If the average

BPV rate exceeds the preset threshold — i.e., from  $10^{-9}$  up to  $10^{-5}$ , an alarm can be declared (assuming BPV alarm is enabled). ES and UAS employ threshold-triggered alarms, but these alarms are declared as soon as the recorded account exceeds the preset threshold. The 15-minute integration interval does not apply to ES and UAS alarms. Alarm register states are reset every 15 minutes, but preserved in the Alarm History display.

## Chapter 3 Operation

**Table 3 - 3 Alarm Type Table**

ALARM TYPE	ALARM DESCRIPTION	THRESHOLD
"MAST-CLK LOSS"	Master Clock Loss	no
"RAI/YEL"	Yellow Alarm	no
"AIS"	Alarm Indication Signal	no
"LOS"	Loss of Signal	no
"LOF"	Loss of Frame	no
"BPV"	Bipolar Violation 10E- (5, 6, 7, 8, 9)	yes (default 5)
"ES"	Error Second (0 to 900)	yes (default 1)
"UAS"	Unavailable Second (0 to 900)	yes (default 1)
"CSS"	Control Slip Second (0 to 900)	yes (default 1)
DTE(V.35) "DTE"	RTS loss	no
PROTECTION	Protection Activation Alarm	no

The following table lists the types of performance parameters

**Table 3 - 4 Performance Report Options**

Report Type [Menu Command]	Category	Report							
		ES	UAS	BES	SES	CSS	LOFC	BPV	ESF
Front Panel Reports	USER [Network]	Y	Y	Y	Y	Y	Y	Y	—
1-Hour Terminal Reports	USER [Network]	Y	Y	Y	Y	Y	Y	—	—
	LINE [Network]	N/C	N/C	N/C	N/C	N/C	N/C	—	—
24-Hour Terminal Reports	USER [Network]	Y	Y	Y	Y	Y	Y	Y	Y
	LINE [Network]	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
CRC Error Count Terminal Reports	USER [Network]	—	—	—	—	—	—	—	Y X
	LINE [Network]	—	—	—	—	—	—	—	N/C
Menu Option [E]	FAR-END	—	—	—	—	—	—	—	N/C

Y = Report available and can be cleared by front panel "RESET" or admin terminal command "Y".

X = Report available and can be cleared by front panel "RESET" or admin terminal command "X".

N/C = No clear. Report available, but counts cannot be cleared by the user.

— = Report not available.

### 3.6.2 Requesting Report

For E1, the performance report can be accessed from local terminal directly or from remote terminal via modem. In both T1/D4 and ESF frame format mode, the performance report can be accessed from local terminal directly or from remote terminal via modem.

For T1, in ESF mode, performance report can be accessed via data link. User will choose either AT&T or ANSI T1.403 data link operation in DS1 network line interface configuration. AT&T TR 54016 should be referred to as how the performance report request message and response message are structured. ANSI T1.403 should be referred to how the one second performance report message structured.

Loop-V4300 supports both AT&T TR 54016 and ANSI T1.403 performance report message.



### 3.7 LED Operation

The front panel has 6 LEDs, one for power, one for alarm and one for each port.

Table 3-5 lists each LED and its color and indications.

**Table 3 - 5 Front-Panel LED Table**

	LED	Color	Indication
	POWER	Off Green Amber	Power off, or self-test failure Power on and operational Without saving the current working-configuration. (Before Amber is off, do not turn off the system.)
D S 1  L I N E	PORT-A	Off Green Flashing Green Red Amber Flashing Amber	Not available Line frame in sync A line-side test is in progress Loss of Frame Sync (LOFS) or Loss of Signal ( LOS) Receive yellow alarm from line Receive AIS from line
	PORT-B	As Port-A above	As Port-A above
	PORT-C	As Port-A above	As Port-A above
	PORT-D	As Port-A above	As Port-A above
D T E	PORT-C	Off Flashing Green Green Red	Not available Loopback is active RTS is asserted Loss of RTS or loss of clock
	PORT-D	As Port-C above	As Port-C above
	ALARM	Off Red	No alarm or all alarm parameters are disabled At least one alert event has occurred

### 3.8 Error Messages

Loop-V4300 provides various error messages on LCD display to indicate abnormal condition as listed in Table 3-6.

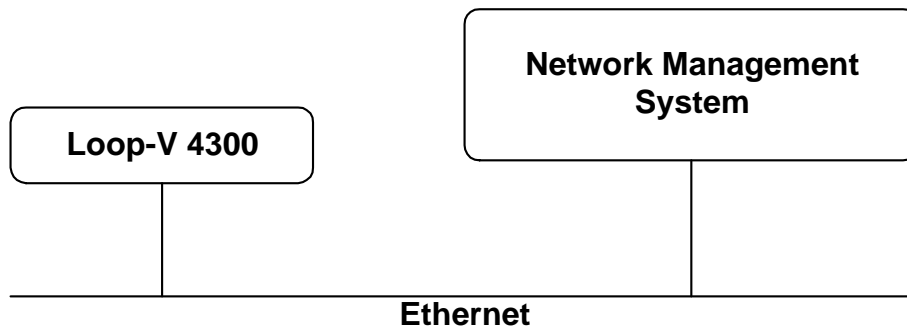
**Table 3 - 6 Error Message Table**

ERROR CODE	ERROR DESCRIPTION
ERROR01	A loopback is in effect
ERROR02	ESF or ESF&T1.403 mode is required
ERROR03	LCD operation is locked
ERROR04	Channel is already in use
ERROR05	Cannot confirm due to alarms
ERROR09	A diagnostic test is in progress
ERROR11	SNMP_SLIP mode is in progress
ERROR12	Illegal Date/Time format
ERROR23	Undefined response
ERROR24	The port did not respond
ERROR26	Port not installed

If an error code is displayed which is not listed above, see factory for repairs.

### 3.9 Embedded SNMP Agent

The embedded SNMP agent for Loop-V4300 offers standard RFC 1213 MIB II and RFC 1406 DS1 MIB as well as Loop Telecom's enterprise MIB. Network manager can use any SNMP compatible network management system such as Sun Connect's Sun Net Manager and Hewlett-Packard's HP OpenView to monitor and control Loop-V4300 series. This enables user to integrate WAN equipment management with LAN SNMP network management systems. The embedded SNMP agent also includes Telnet implementation to allow user to access Loop-V4300 terminal interface from any workstation in the network.



**Figure 3 - 1 SNMP Connection**

The Loop-V4300 uses the Ethernet port to provide the embedded SNMP agent functionality.

Before SNMP is enabled, make sure the IP address for Loop-V4300 is configured correctly.

Once the SNMP agent is activated, user can verify whether the Loop-V4300 is running successfully by using ping command to check if Loop-V4300 series is responding or not. e.g.

```
ping 192.1.100.45
```

```
192.1.100.45 is alive
```

Please refer to each respective SNMP manager operation instruction to incorporate the Loop-V4300 series enterprise MIB to the system.

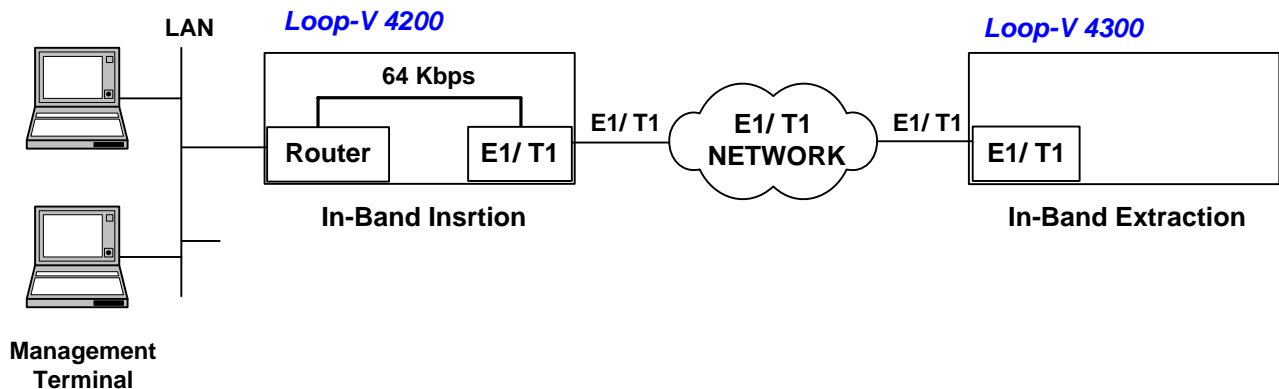
Telnet capability comes with embedded SNMP agent. Once SNMP agent is running, user can use telnet program that is simulated a VT100 to access Loop-V4300 command screen. The most popular Telnet utility in the public domain is provided by NCSA. It can maintain several telnet connections simultaneously.

### 3.10 Inband Management

In addition to the console port and the Ethernet port, Loop-V4300 can also allow remote management through a 64 Kbps time slot from the network line. To achieve remote management using this “in-band” technique, two steps are necessary.

## Chapter 3 Operation

First, the Ethernet connection of the remote management terminal must be inserted to a designated time slot in the network. This time slot can be a DS0 channel in an E1 or T1 line. This can be achieved through a router-CSU/DSU-mux series of equipment or in one step through a router interface on a Loop-V 4200.



Next, the equipment to be managed, namely the Loop-V4300 must extract this 64 Kbps time slot and map it to the management port. This is accomplished through the TSI map screen.

**NOTE:** When you are setting the Inband Management configuration (see section 6.12.3, Inband Management Setup, in this manual for details) a loopback timer will appear on your screen. If you are planning to do any loopback testing while in the Inband Management (HDLC) mode you must set the timer for a period (in seconds) suitable to your testing requirements. The inband management function will be unavailable for the duration of the loopback testing. If you are not planning to do any Loopback testing while in the Inband Management mode leave the timer at its default setting of "0" seconds.

The purpose of the timer is to prevent the irretrievable loss of your inband management line while doing loopback testing. When you are not in the inband management mode and wish to do loopback testing you can ignore the timer.

**NOTE:** For optimal performance, please limit the use of inband to 4 nodes per 64 kbps.

### 4. MAINTENANCE

#### 4.1 Self-Test

At system power up, a complete self-test routine is run to check all I/O ports, read/write memory, and data paths to validate system integrity. During the system self test, "TESTING" message is shown on the upper line of the LCD display. The software release version and date code is shown on the lower line of the LCD display. If an error is detected, FAIL is shown in the middle of upper line of the LCD display and a dedicated error message is shown on the lower line. If no error is found, the LCD display will show "PASS" in the middle of the upper line of the LCD display followed by a Main Menu as shown below.



Various system diagnostic methodology can be found in the following paragraphs.

#### 4.2 Diagnostics

Pseudo-random patterns are commonly used for diagnostic tests of digital systems. For E1, a 15-bit register PRBS (Pseudo-Random Binary Sequence) pattern is standard practice. For T1, a 20-bit register QRSS (Quasi-Random Signal Sequence) patterns is used. Both patterns, to be supplied by an external test set, can be used for testing local Loop-V4300 system integrity by local loopback test, and for measuring the line quality. The diagnostics scenario can be as follows:

First, enable one of the local loopbacks. Next, send a pattern from the remote site. This pattern should be detected on the return line. Line quality and the integrity of the Loop-V4300 can be thus verified.

#### 4.3 Near End Loopback - DTE

DTE port loopback is illustrated in Figure 4-1. There are two types of loopback, TO-DTE and TO-LINE. TO-DTE is when DTE incoming signal is loopback to the DTE outgoing signal. TO-LINE is when DTE outgoing signal is loopback to the DTE incoming signal. This loopback is used to validate the unit integrity of DTE facility. DTE loopback test can be activated from the front panel and terminal.

#### 4.4 Near End Loopbacks - T1/ E1

The near end loopback such as local loopback, payload loopback and line loopback are activated locally by using the front panel or the terminal, or remotely via the Ethernet port and SNMP management facilities.

The loopbacks are at the near end facility. The following paragraph describes each loopback in detail.

**NOTE:** Deactivate the near-end loopbacks from the front panel or the terminal, depending on where it was activated.

### 4.4.1 Local Loopback

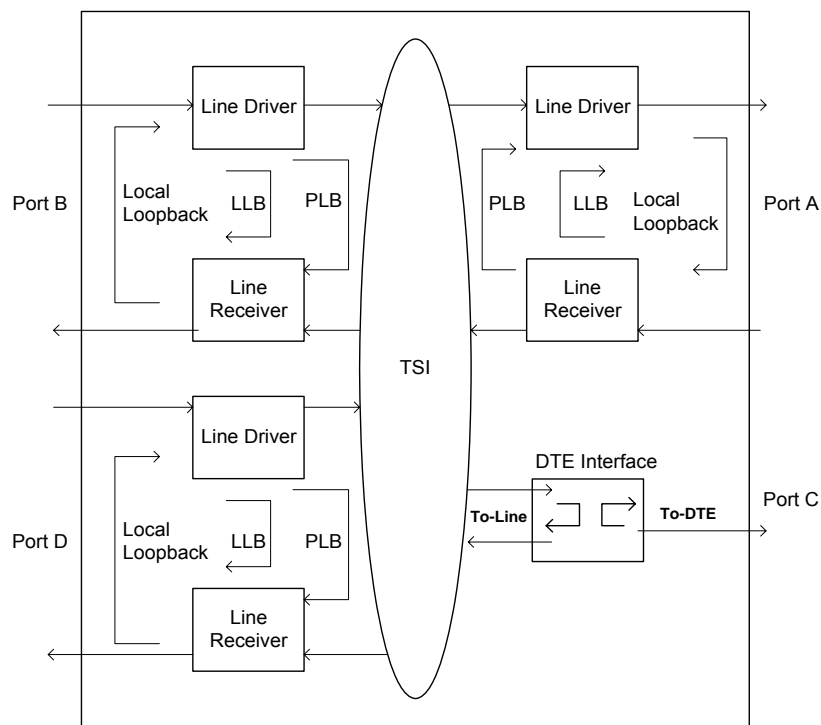
Local loopback is illustrated in Figure 4-1. The outgoing signal is looped back through the port PCM transceiver. All DS0 channels are looped back to the receiver path. This loopback test is activated by the Test command. This loopback test can be used with the PRBS/QRSS diagnostic test pattern to validate the framer and the line interface circuits of any one port. When used with a test set connected to another port, this loopback validates the TSI function. An AIS (Alarm Indication Signal) is sent to the network during the local loopback test. The local loopback test can be activated from the front panel and terminal.

### 4.4.2 Line Loopback

Line loopback is illustrated in Figure 4-1. The incoming line signal is loopback to the outgoing signal before the transceiver framer. This loopback is used to isolate the local equipment from a troubled transmission line. Line loopback test can be activated from the front panel and terminal.

### 4.4.3 Payload Loopback

Payload loopback is illustrated in Figure 4-1. The incoming signal is loopback to the outgoing line signal after the transceiver framer. This loopback is used to isolate the TSI from the troubled transmission line. Payload loopback test can be activated from the front panel and terminal.



TSI: Time Slots Interchange

PLB: Payload Loopback

LLB: Line Loopback

**Figure 4 - 1 Loop-V4300 Loopback Block Diagram**

### 4.5 Verifying Loop-V4300 Operations

The purpose of this section is not to help the user determine where a possible fault in the network may lie. For this, the user needs to know the exact geometry of the network. Then standard network trouble shooting procedures should be followed, which involve sectionalizing the network and performing loopback tests on pieces of the network.

The purpose here is to help the user determine whether the Loop-V4300 equipment is at fault after tests have pointed a suspicious finger at this equipment. The procedures outlined here depend on test equipment and other equipment the user may have on hand.

The organization of these procedures start from the simple to the complex. The procedure ends when a definitive conclusion is made that the Loop-V4300 equipment is at fault. To verify that the Loop-V4300 equipment is not at fault, specialized equipment such as a BERT (Bit Error Rate Test) set is needed.

#### 4.5.1 Quick Test

See if the LCD display on the Loop-V4300 has normal text. If not, Loop-V4300 has failed.

Remove all line connections to Loop-V4300. Remove power. After a few seconds, re-apply power. Observe the power-up self-test sequence. If this fails, then Loop-V4300 has failed.

See if the LEDs show any abnormal displays. If yes, use the LCD indications to guide the user to test other parts of the network.

Especially during initial installation, excessive errors may be due to (a) incorrect configuration of either Loop-V4300 or of the equipment at the other end of the line, or (b) due to faulty line installation, which results in excessive noise, cross talk, or impedance mismatch. Especially in electrically noisy environments, such as central offices, use of shielded cables are mandatory.

#### 4.5.2 Substitution

If a spare Loop-V4300 is available, then replace the working one with the spare. The user must carefully configure the spare exactly as the working one. If the substitution clears the problem, then the original working one is suspect. Note that this is not definitive as other reasons may cause the same symptom. A good practice is to reconfigure the original one and swap once more.

If both units behave the same, then the problem is probably elsewhere.

#### 4.5.3 Using Loopback Plugs

Without a spare, loopback plugs are handy for diagnosis. Note that internal loopback facilities of the Loop-V4300 does not include the interface circuitry. Thus a set of plugs, one for each of the interfaces types, are needed for complete tests. These plugs are wired such that signals from the Loop-V4300 are looped back by hard wire to the receive pin of the interface.

Replace the line connector with a loopback plug. Observe if the line is in sync. If not then Loop-V4300 has failed. Then perform a loopback test from another port towards the loopback plug. If this fails, then Loop-V4300 has failed.

Note that if a far end terminal is available, the first test should be a local line loopback to see if the line is good.

If tests with loopback plugs all pass, then the problem is probably elsewhere.

### 4.5.4 Using Bert Test Set

If a BERT (Bit Error Rate Test) set is available, such as the Fireberd 6000, then a comprehensive suite of test is available to examine the health of the Loop-V4300 .

With a BERT, each of the ports of the Loop-V4300 can be tested individually. The user must configure the BERT in the exact way the Loop-V4300 is configured. This is easily done by comparing each of the options one by one. After checking that the configuration matches, if any one of the ports fails, then Loop-V4300 has failed.

### 5. FRONT PANEL OPERATION

The front panel operation utilizes a two by sixteen (2 X 16) characters LCD window and four keypads each labeled with ESC, ENTER, left arrow '<', and right arrow '>', as shown in Figure 5-1.

**ENTER** key is used to move down the menu tree or to enable a selection.

**LEFT** and **RIGHT** arrow keys show the next menu item at the same level.

**ESC** key returns the operation to an upper layer menu up to the main menu.

**NOTE:** The **ENTER** key must be used to confirm a change. Where YES is shown at the lower right corner, it must be selected to enable a change.

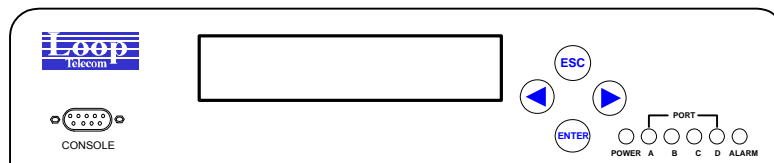


Figure 5 - 1 Front Panel

Each display only shows one menu item. The main menu is shown in below. It is the first menu displayed after power up.

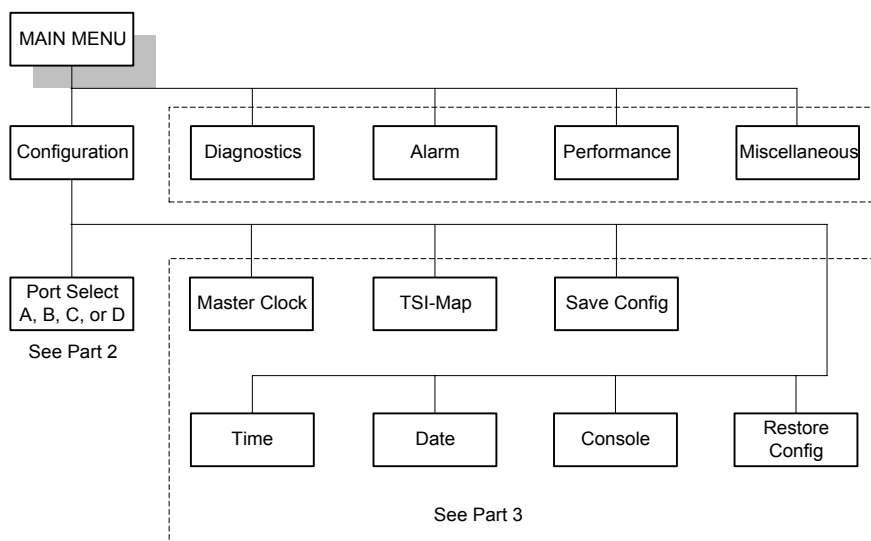


The first tier menu includes Configuration, Diagnostics, Alarm, Performance, and Miscellaneous. Each sub-menu is further broken down into sub-level menus. Subsequent chapters give detailed information regarding these menus. See figures below for an overview of the menu tree. User can press ESC key to cut off all alarms when the cursor is at the top level of menu, such as Configuration, Diagnostics, Alarm, Performance, and Miscellaneous.

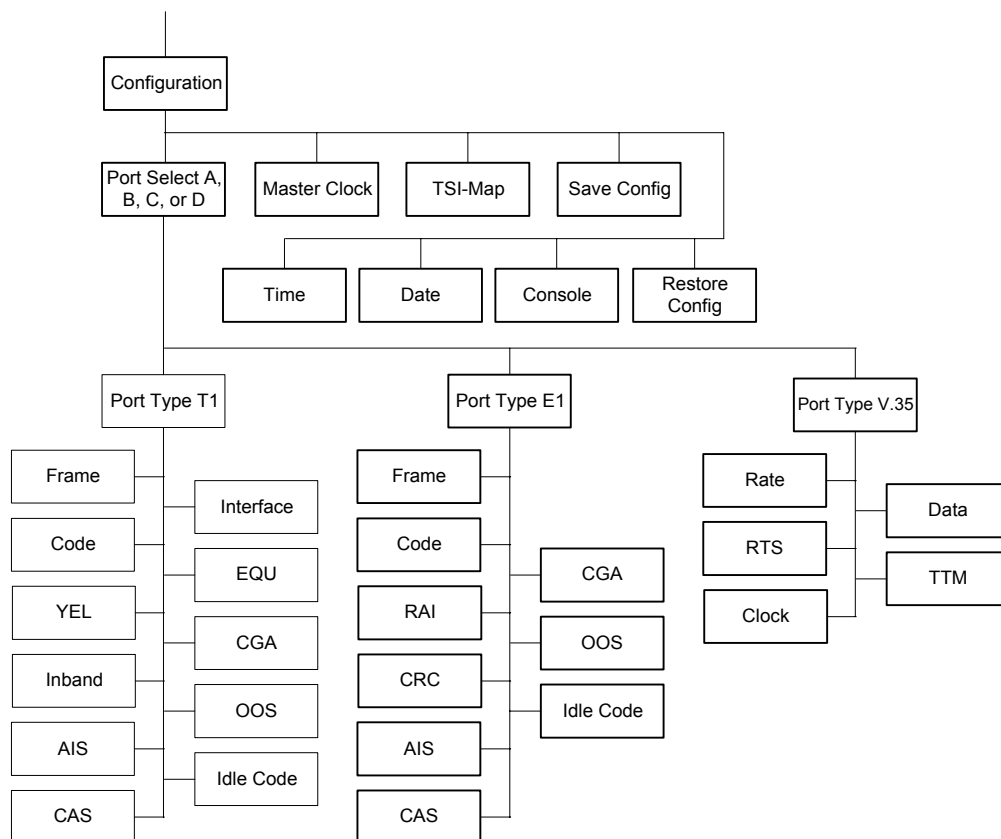
To change selection, use left and right arrow key to a proper selection and then press the ENTER key.



## Chapter 5 Front Panel Operation



**Figure 5 - 2 Front Panel LCD Menu Tree - Part 1**



**Figure 5 - 3 Front Panel LCD Menu Tree - Part 2**

## Chapter 5 Front Panel Operation

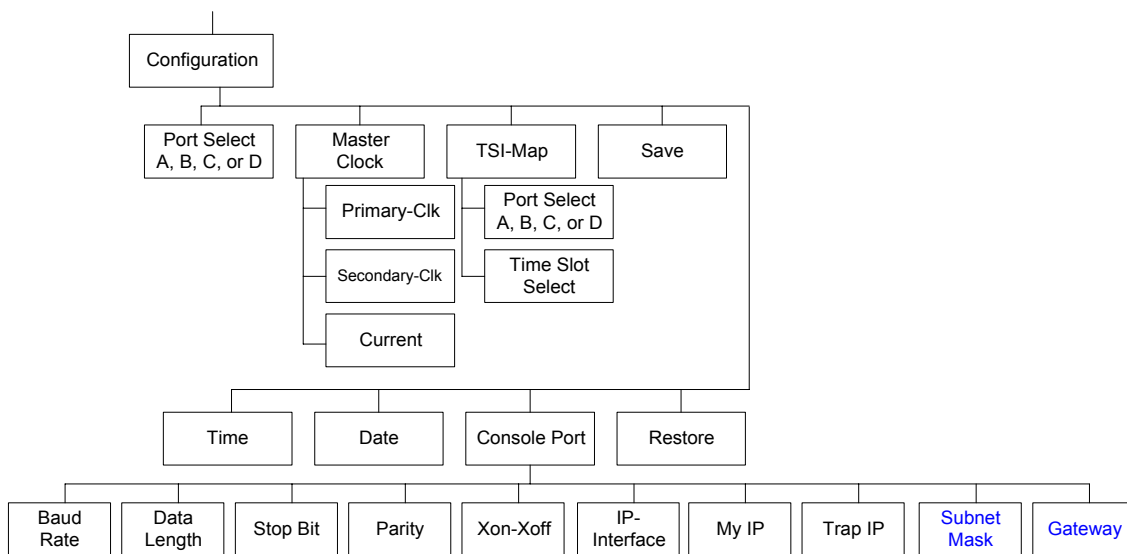


Figure 5 - 4 Front Panel LCD Menu Tree - Part 3

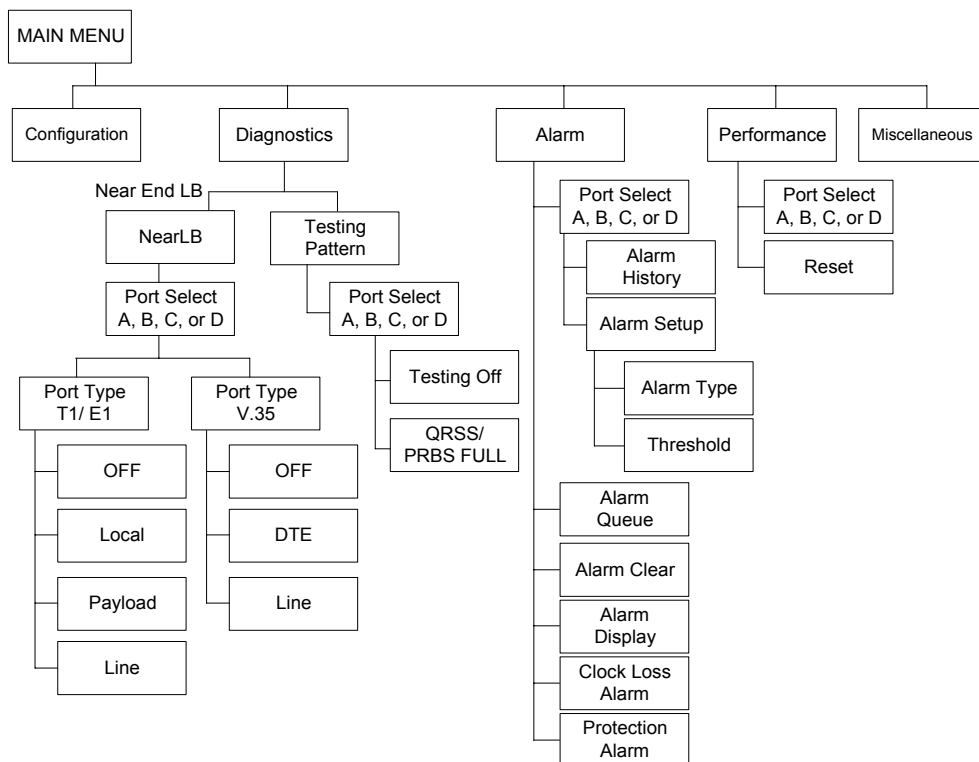


Figure 5 - 5 Front Panel LCD Menu Tree - Part 4

### 5.1 Configuration Menu

Configuration group includes Port Selection for A, B, C, and D, Master Clock, TSI Map, Save Config, Restore Config, Console Port, Date, and Time Menus.

#### 5.1.1 PORT-A Configuration - Line Type T1

PORT-A menus are used to configure the line parameters of Port A. Under configuration menu, use left or right key to select PORT-A menu. When Port A is selected, the type of line is displayed, in this example (T1). The case for line type E1 will be discussed in the next section.

##### 5.1.1.1 Frame Menu

Path : Loop-V  
Configuration Configuration  
PORT-A (T1) PORT-A (T1)  
Frame

Configuration  
Port\_A (T1)

Port\_A (T1)  
Frame

Press ENTER from Frame menu

Frame	PORT-A
*ESF	

To change the frame type, use left and right arrow key to cycle to a proper selection and press ENTER. While ESF indicates ESF frame format is chosen and facility data link follows AT&T PUB 54016 standard.

##### 5.1.1.2 Code Menu

To select the coding scheme, use left and right arrow key cycle through to a proper selection and press ENTER.

Path : Loop-V  
Configuration Configuration  
PORT-A PORT-A (T1)  
Code

Code PORT-A  
\*B8ZS

### 5.1.1.3 Yellow Alarm Menu

Yellow alarm menu shows the current yellow alarm transmission state when this unit loss of signal or loss of frame sync. To enable yellow alarm being automatically sent out when loss of signal and loss of frame sync, use left and right arrow key cycle through to ON and press ENTER. To disable yellow alarm sending, use left and right arrow key cycle through to OFF and press ENTER.

Path : 

<b>Loop-V Configuration</b>
---------------------------------

<b>Configuration PORT-A</b>
---------------------------------

<b>PORT-A (T1) YEL</b>
----------------------------

<b>YEL *ON</b>	<b>PORT-A</b>
--------------------	---------------

### 5.1.1.4 Inband Menu

Inband menu shows the remote inband loopback diagnostics code recognition. To enable or disable, use left and right arrow key cycle through to ON or OFF and press ENTER.

Path : 

<b>Loop-V Configuration</b>
---------------------------------

<b>Configuration PORT-A</b>
---------------------------------

<b>PORT-A (T1) Inband</b>
-------------------------------

<b>Inband *OFF</b>	<b>PORT-A</b>
------------------------	---------------

### 5.1.1.5 AIS (Alarm Indication Signal)

AIS menu shows the configuration set for the alarm indication signal. Use left and right arrow key cycle through to FRAME or UNFRAMED and press ENTER.

Path : 

<b>Loop-V Configuration</b>
---------------------------------

<b>Configuration PORT-A</b>
---------------------------------

<b>PORT-A (T1) AIS</b>
----------------------------

<b>AIS *FRAME</b>	<b>PORT-A</b>
-----------------------	---------------

### 5.1.1.6 CAS (Channel Associated Signaling)

Channel-Associated Signaling has ON and OFF features. ON designation is for CAS enabled, and OFF designation is for CAS disabled.

Path : 

<b>Loop-V Configuration</b>
---------------------------------

<b>Configuration PORT-A</b>
---------------------------------

<b>PORT-A (T1) CAS</b>
----------------------------

<b>CAS *OFF</b>	<b>PORT-A</b>
---------------------	---------------

## Chapter 5 Front Panel Operation

For front panel operations, the configuration of the CAS is for display only. This is because CAS is set along with the TSI Map, which is a terminal operation. To change, use the terminal.

### 5.1.1.7 Interface Menu

To change the interface type to long haul or short haul, use left and right arrow key cycle through to a proper selection and press ENTER.

Path : **Loop-V Configuration**      **Configuration PORT-A**      **PORT-A (T1) Interface**

```
INTERFACE          PORT-A
*LONG HAUL
```

The choices are LONG HAUL and SHORT HAUL, which will affect the next menu selection.

### 5.1.1.8 EQU (Equalization)

When the digital transmission span linking two devices is short, the transmitted power, for some equipment, must be reduced to prevent received signal overload.

Path : **Loop-V Configuration**      **Configuration PORT-A**      **PORT-A (T1) EQU**

```
EQU                PORT-A
*0dB
```

(0 db / -7.5 dB/ -15 dB) is available when Long Haul is chosen.

```
EQU                PORT-A
*0-133
```

(0-133/133-266/266-399/399-533/533-655) in feet is available when Short Haul is chosen.

### 5.1.1.9 CGA (Carrier Group Alarm) Menu

To configure CGA as NORMAL or TRANSPARENT, use left and right arrow key cycle through to a proper selection and press ENTER.

Path : **Loop-V Configuration**      **Configuration PORT-A**      **PORT-A (T1) CGA**

```
CGA                PORT-A
*NORM
```

The choices are Normal and Transparent, which will affect the next menu selection.

### 5.1.1.10 OOS (Out of Service) Menu

To change the OOS protocol, use left and right arrow key cycle through to a proper selection and Press ENTER.

Path : Loop-V  
Configuration Configuration  
PORT-A PORT-A (T1)  
OOS

OOS
PORT-A

\*BUSY

### 5.1.1.11 Idle Code Menu

Idle menu shows the transmission idle code when DS0 channel is in idle mode. To change idle code, Press ENTER key to cycle through the idle code. This operation must be concluded by moving the cursor using the arrow keys to OK position and press ENTER to enable the changes.

Path : Loop-V  
Configuration Configuration  
PORT-A PORT-A (T1)  
Idle

Idle Code
PORT-A

\*0xff
OK

## 5.1.2 Other Ports and Line Type E1

If Ports B, C, or D are selected, and the line type is T1, the menus will be the same except for the port designation on the upper right of the LCD screen. If a port is selected that is of type E1, then the sub-menus differ. RAI will replace the YEL menu, with similar function. Interface and Equalization are not available for E1. Finally, CRC, which is part of the FRAME configuration for T1, becomes an independent choice for E1.

### 5.1.2.1 RAI (Remote Alarm Indication)

The function of RAI for E1 is similar to the yellow alarm for T1.

Path : Loop-V  
Configuration Configuration  
PORT-A PORT-A (E1)  
RAI

RAI
PORT-A

\*ON

### 5.1.2.2 CRC (Cyclic Redundancy Checksum)

CRC allows for error checking of the entire E1 route, rather than a single span as provided by bipolar violation.

Path : **Loop-V Configuration**      **Configuration PORT-A**      **PORT-A (E1) CRC**

**CRC**  
**\*ON**      **PORT-A**

### 5.1.3 Port Type V.35

DTE menu is used to configure DTE port operation mode, such as Rate, Data, Polarity, Clock Polarity, RTS mode, and TTM mode.

Path : **Loop-V Configuration**      **Configuration PORT-C**      **PORT-C (V35) Rate**

#### 5.1.3.1 Rate

Press ENTER from the Rate menu to show this menu.

**Rate**  
**\*64KxN**

#### 5.1.3.2 Data

Under the PORT\_C (V.35) menu, select Data option. Then press ENTER from the Data menu to show the following menu.

**Data**  
**\*NORMAL**

#### 5.1.3.3 Clock

Under the PORT\_C (V.35) menu, select Clock option. Then press ENTER from the Clock menu to show the following menu.

**Clock**  
**\*NORMAL**

#### 5.1.3.4 RTS

Under the PORT\_C (V.35) menu, select RTS option. Then press ENTER from the RTS menu to show the following menu.

**RTS**  
**\*ACTIVE**

### 5.1.3.5 TTM

Under the PORT\_C (V.35) menu, select TTM option. Then press ENTER from the TTM menu to show the following menu.



### 5.1.4 Master Clock

For the Master Clock option, for both primary clock and secondary clock, users have choice using Port A, B, C, D, or Internal as the system clock source.



#### 5.1.4.1 Primary

Press ENTER at the Master Clock Primary-Clk menu to show this menu.



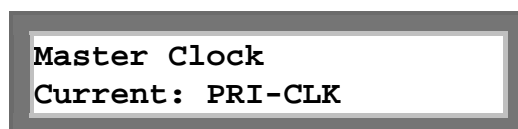
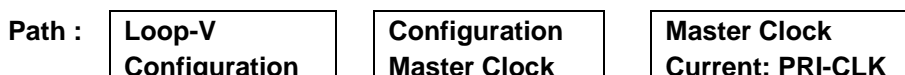
#### 5.1.4.2 Secondary

Press ENTER at the Master Clock Secondary-Clk menu to show this menu. In addition to the same choices as the primary clock, user can select the choice NONE, which is equivalent to selecting the same clock source as the primary.



#### 5.1.4.3 Current

To view the current clock source, whether primary or secondary, press ENTER at the Master Clock Current menu.





### 5.1.5 TSI Map

Because of the complexity of the TSI map, from the front panel LCD, the TSI map can be displayed only. To configure the TSI map of Loop-V4300, use the terminal, which can display the entire mapping on a single screen.

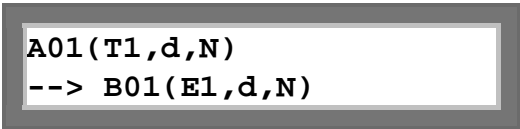
Path : 

<b>Loop-V Configuration</b>
---------------------------------

<b>Configuration TSI-Map</b>
----------------------------------

<b>TSI-Map Port_A (T1)</b>
--------------------------------

From the Configuration menu, select the TSI-Map. Press ENTER. At the TSI-Map menu, use the left or right arrow keys to select the port. Then press ENTER.

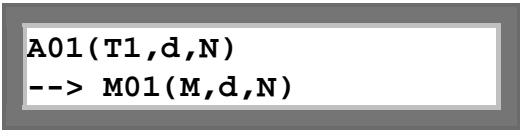


```
A01(T1,d,N)
--> B01(E1,d,N)
```

The pair of channels being interchanged is shown on the upper and second lines of the LCD. On each line, the port (A, B, C, or D) and the time slot (01 to 31) is indicated. A01 stands for port A, time slot 01. In the parenthesis is shown the line type (T1 or E1), whether the channel is designated data or voice (d or v), and whether CAS or not (C or N).

Use the left or right arrow keys to change the time slot on the first line. Use the ESC key to back out to port selection to view time slot assignments for other ports.

As for the following LCD shows, A01 is mapped to time slot 1 of in-band management.



```
A01(T1,d,N)
--> M01(M,d,N)
```


### 5.1.6 Save

To save the current configuration into memory, go to the Save Config menu. Press ENTER.

Path : 


<b>Loop-V Configuration</b>
---------------------------------

<b>Configuration Save Config</b>
--------------------------------------



```
Save Config
Confirm?
```

Confirm by pressing ENTER. When the operation is complete, user is notified. Press ESC to go back towards the main menu.



```
Save Config
Wait...OK
```

### 5.1.7 Restore

To restore the configuration from the saved memory, go to the Restore Config menu. Press ENTER.

Path :

Loop-V  
Configuration

Configuration  
Restore Config

Restore Config  
Confirm ?

Confirm by pressing ENTER. When the operation is complete, user is notified. Press ESC to go back towards the main menu.

Restore Config  
Wait...OK

### 5.1.8 Console

The console port on the front panel can be configured to match that of the terminal. The selection path for each of the parameters are shown. For each parameter, use the arrow keys to change the selection and press ENTER to confirm. The parameters are Baud Rate, Data Length, Stop Bit, Parity, and Xon-Xoff (Flow Control).

Path :

Loop-V  
Configuration

Configuration  
Console Port

Console Port  
Baud Rate

Baud Rate  
\*9600 bps

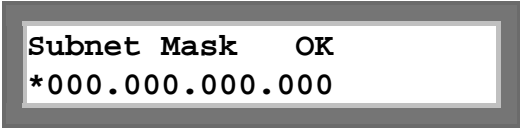
Data Length  
\*8 bits

Stop Bit  
\*1 bit

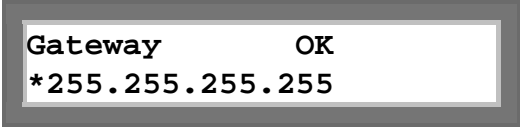
Parity  
\*NONE

Xon-Xoff  
\*OFF

## Chapter 5 Front Panel Operation



Subnet Mask OK  
\*000.000.000.000




Gateway OK  
\*255.255.255.255

### 5.1.9 Date

The system date can be set under the Configuration Date menu.

Path :  



Date  
\*03/16/1998 OK

The date is shown in mm/dd/yyyy format.

To change date, press ENTER key to move the cursor to the lower line of the LCD. Then press the arrow keys to move the cursor to the field to be changed. Press ENTER to cycle through the numbers, which is 1 to 31 for the date, 1 to 12 for month, and 1968 to 2036 for the year. This operation must be concluded by moving the cursor to OK position and press ENTER to enable the changes.

### 5.1.10 Time

The system time can be set under the Configuration Time menu.

Path :  




Time  
\*11:28:46 OK

The time is shown in 24 hour format.

To change time, press ENTER key to move the cursor to the lower line of the LCD. Then press the arrow keys to move the cursor to the field to be changed. Press ENTER to cycle through the numbers, which is 0 to 23 for the hour, 0 to 59 for minutes, and 0 to 59 for the second. This operation must be concluded by moving the cursor to OK position and press ENTER to enable the changes.

### 5.2 Diagnostics Menu

Two sub-menus for Diagnostics are near-end loopback and testing pattern. If a loopback is in session, the front panel LED for that port will be flashing green.



```
Loop-V
Diagnostics
```

#### 5.2.1 Near Loopback

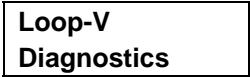
The first step to set up loopback is to select the port. From Diagnostics sub-menu, press ENTER. NearLB is near-end loopback. Then use the arrow keys to cycle to the desired port. Press ENTER.




```
Diagnostics
NearLB
```

To select a loopback type, use left or right arrow key to cycle through to a desired selection and press ENTER. Choices are: OFF, Local LB, Payload LB, and Line LB. Select OFF to end the loopback test.

Path :



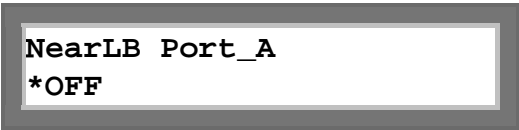
```
Loop-V
Diagnostics
```



```
Diagnostics
NearLB
```



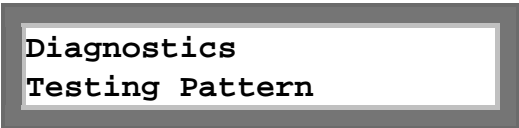
```
NearLB
NearLB      Port A
```



```
NearLB Port_A
*OFF
```

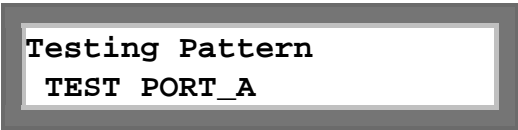
#### 5.2.2 Testing Pattern

Use arrow keys to select "Testing Pattern", press ENTER.



```
Diagnostics
Testing Pattern
```

Use arrow keys to select the desired port, then press ENTER.



```
Testing Pattern
TEST PORT_A
```

Two options are available for the TEST PORT\_A: TESTING OFF and QRSS/PRBS FULL. Use arrow key to select the desired selection, press ENTER. The current selection will be highlighted by an asterisk (\*).



```
TEST PORT_A
TESTING OFF
```



```
TEST PORT_A
*QRSS/PRBS FULL
```

### 5.3 Alarm

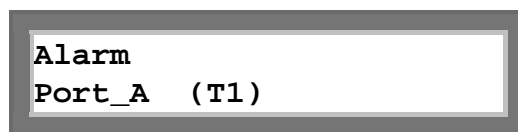
Alarm sub-menu provides viewing of existing and past alarms.



```
Loop-V
Alarm
```

#### 5.3.1 Select Port

The first step to is to select the port. From Alarm sub-menu, press ENTER. Then use the arrow keys to cycle to the desired port. Press ENTER. The type of port (T1), is shown.

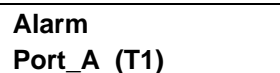


```
Alarm
Port_A (T1)
```

Path :

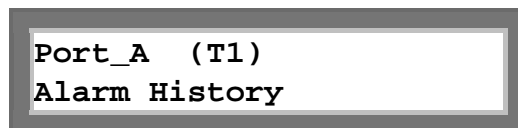


```
Loop-V
Alarm
```



```
Alarm
Port_A (T1)
```

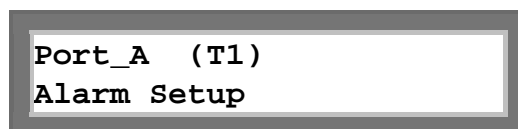
To select a menu item under Alarm, use left or right arrow key to cycle through to a desired selection and press ENTER. Choices are: Alarm History, Alarm Setup, Alarm Queue, Alarm Clear, Alarm Display, Clock Loss Alarm, and Protection Alarm.



```
Port_A (T1)
Alarm History
```

Under Alarm history, user can in turn select the alarm type: Yellow, AIS, LOS, etc.

If Alarm Setup is selected. user will be asked for the alarm type, whether to enable, and if applicable, the alarm threshold.



```
Port_A (T1)
Alarm Setup
```




```
Alarm Setup
Alarm
```



```
Alarm Setup
Threshold
```

### 5.4 Performance

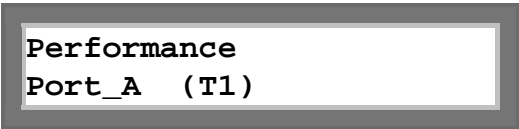
Performance sub-menu provides viewing of current line performance.



```
Loop-V
Performance
```

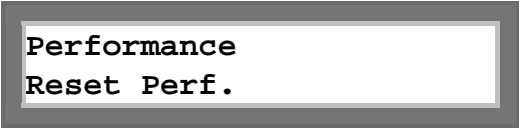
#### 5.4.1 Select Port

The first step to is to select the port. From Performance sub-menu, press ENTER. Then use the arrow keys to cycle to the desired port. Press ENTER. The type of port (T1), is shown.




```
Performance
Port_A (T1)
```

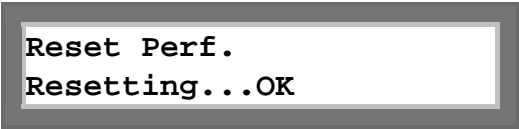
Also under Performance is the item RESET. To reset Performance data, use left or right arrow key to cycle through to a Reset Perf. Then press ENTER. User will be asked to confirm by pressing ENTER again.



```
Performance
Reset Perf.
```



```
Reset Perf.
Confirm ?
```



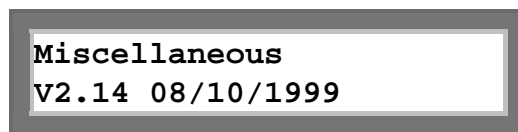
```
Reset Perf.
Resetting...OK
```

### 5.5 Miscellaneous

The Miscellaneous sub-menu allows display of the software and hardware versions.



Use arrow keys to cycle through software and hardware version display.



### 6. TERMINAL OPERATIONS

The Mini-DACS provides comprehensive report and enhanced configuration capability through the console port. A VT-100 type terminal can be connected to the console port in the front of the Mini-DACS. Using single-character commands and arrow keys, the Mini-DACS can be configured and monitored. The single-character command is not case sensitive. On each screen, the available commands and the configurable fields are highlighted. Upon the Mini DACS power up, a main menu is shown.

**NOTE:** On the upper right corner of the screen, a time-of-day display indicates the time the current screen is shown. User may press any key other than ESC to update the screen.

**NOTE:** ONLY for T1 in ESF frame format mode, far-end operation is accessible.

If the terminal screen is illegible, press "Enter." key and "Esc" key alternatively to bring out the main menu. If all efforts fail, check if the right cable is used, and if the console port parameter setting is matched with the terminal using the front panel "Console" command.

The main menu consists of four groups of commands, Display, Access, Setup and Clear & Reset. Initially, only Display and Access commands are available. To enable Setup and Clear commands, user has to log on using "O" command. If Password is enabled, user will be asked to enter password.

```

Loop-V                      === Main Menu ===                      10:59:59 09/28/2001

[DISPLAY]                   [SETUP]
1  -> 1-Hour Performance Report   L  -> Loopback Test
2  -> 24-Hour Performance Report  M  -> Alarm Setup
A  -> Line Availability           P  -> Password Setup
C  -> System Setup Display        S  -> System Setup
D  -> System Description          R  -> Retrieve Last Stored Configuration
H  -> Alarm History              V  -> Store Current Configuration
I  -> System Status              T  -> Download Firmware
Q  -> Alarm Queue

[ACCESS]                   [CLEAR & RESET]
F  -> Log Off [SETUP] and         N  -> Load Default Config and Reset Sys.
      [CLEAR & RESET] menu       U  -> Clear Alarm Queue
O  -> Log On  [SETUP] and         Y  -> Clear Performance Data
      [CLEAR & RESET] menu       Z  -> System Reset
                                  B  -> Clear Alarm LED
                                  X  -> Revert to Port A

>>Enter command ?
  
```

```

Loop-V                      === Main Menu ===                      10:59:59 09/28/2001

[DISPLAY]                   [SETUP]
1  -> 1-Hour Performance Report   L  -> Loopback Test
2  -> 24-Hour Performance Report  M  -> Alarm Setup
A  -> Line Availability           P  -> Password Setup
C  -> System Setup Display        S  -> System Setup
D  -> System Description          R  -> Retrieve Last Stored Configuration
H  -> Alarm History              V  -> Store Current Configuration
I  -> System Status              T  -> Download Firmware
Q  -> Alarm Queue

[ACCESS]                   [CLEAR & RESET]
F  -> Log Off [SETUP] and         N  -> Load Default Config and Reset Sys.
      [CLEAR & RESET] menu       U  -> Clear Alarm Queue
O  -> Log On  [SETUP] and         Y  -> Clear Performance Data
      [CLEAR & RESET] menu       Z  -> System Reset
                                  B  -> Clear Alarm LED
                                  X  -> Revert to Port A

Change to Port A - are you sure ? [Y/N]
  
```



## Chapter 6 Terminal Operations

### 6.1 One Hour Performance Report

To show 1 hour performance report, enter 1. User will be asked to select the port and the type of report.

```
=== 1-Hour Performance Report ===                               11:50:03 07/17/2003
>> Select interface port?  PORT_A  *PORT_B  PORT_C  PORT_D
```

```
=== 1-Hour Performance Report ===                               11:50:03 07/17/2003
>> Select interface port?  PORT_A  *PORT_B  PORT_C  PORT_D
>> Select register type?   USER  LINE  *FAR-END
```

Use cursor keys to select a desired type of report and press ENTER key to view the report as follows. Note the line type (E1) is shown to the right of the port number.

```
=== 1-Hour Performance Report ===                               11:50:03 07/17/2003
PORT_B (E1)  FAR-END

-- Valid Seconds in Current 15-Min Interval : 128 seconds
      (ES)   (UAS)   (BES)   (SES)   (DM)   (CSS)
Current 15-Min Interval      :      0      128      0      0      0      1
1st Nearest 15-Min Interval : -----
2nd Nearest 15-Min Interval : -----
3rd Nearest 15-Min Interval : -----
4th Nearest 15-Min Interval : -----

-- Valid 15-Min Intervals in Current 24-Hour Interval: 0
      (ES)   (UAS)   (BES)   (SES)   (DM)   (CSS)
Current 24-Hour Interval    : -----
07/16/2003                  : -----
07/15/2003                  : -----
07/14/2003                  : -----
07/13/2003                  : -----
07/12/2003                  : -----
07/11/2003                  : -----
07/10/2003                  : -----
<< Press 'LEFT' or 'RIGHT' ARROW KEY to switch between interface ports >>
<< TAB key to show Statistics Report >>
<< ESC key to return to previous menu, SPACE bar to refresh >>
```

## Chapter 6 Terminal Operations

### 6.2 Twenty Four Hour Performance Report

To show the 24 hour performance report, enter 2. A prompt asking for the type of report and performance data is shown at the bottom of the screen.

```
=== 24-Hour Performance Report ===                               11:50:03 07/17/2003

>> Select interface port?  PORT_A  *PORT_B  PORT_C  PORT_D
>> Select Register Type ?  USER  LINE  *FAR-END
```

Use arrow keys to move cursor to the desired selection and press ENTER.

```
=== 24-Hour Performance Report ===                               11:50:45 07/17/2003
PORT_B (E1)  FAR-END
-- Valid Seconds in Current 15-Min Interval : 170 seconds
-- Valid 15-Min Intervals in Current 24-Hour Interval: 0
      (ES)   (UAS)   (BES)   (SES)   (DM)   (CSS)
Current 15-Min Interval      :      2      119      0      0      0      1
Current 24-Hour Interval    : -----
-- FAR-END, ES, Last 96 15-Min Interval :
01-08 > -----
09-16 > -----
17-24 > -----
25-32 > -----
33-40 > -----
41-48 > -----
49-56 > -----
57-64 > -----
65-72 > -----
73-80 > -----
81-88 > -----
89-96 > -----
<< Press 'LEFT' or 'RIGHT' ARROW KEY to switch between interface ports >>
<< TAB key to show Statistics Report >>
<< ESC key to return to previous menu, SPACE bar to refresh >>
```

### 6.3 Line Availability

Press A to view line availability for all ports.

```
=== Line Availability during Last 24-Hour ===                     15:57:43 04/17/1998

Start Time           : 15:55:11 04/17/1998

PORT_A (T1):
Valid Seconds       : 151 seconds
Available Seconds   : 0 seconds
Unavailable Seconds : 151 seconds
Line Availability    :000.00 %

PORT_C (T1):
Valid Seconds       : 151 seconds
Available Seconds   : 0 seconds
Unavailable Seconds : 151 seconds
Line Availability    :000.00 %

PORT_B (E1):
Valid Seconds       : 151 seconds
Available Seconds   : 0 seconds
Unavailable Seconds : 151 seconds
Line Availability    :000.00 %

PORT_D (T1):
Valid Seconds       : 152 seconds
Available Seconds   : 0 seconds
Unavailable Seconds : 152 seconds
Line Availability    :000.00 %

<< Press ESC key to Return to Main Menu >>
```

### 6.4 System Setup Display

To show the system setup display, enter C. A prompt asking for PORT, MAP, or SYSTEM to which the report is shown at the bottom of the screen. The display is the same for the command S, System Setup, except the screen is display only. Refer to System Setup for the screen display.

### 6.5 System Description

To show the system description report, enter D. The report shows the detail information about the system. If you contact our customer service concerning this product, please have those information ready.

```
=== System Description ===                                10:58:05 09/28/2001

Serial Number      : 000001
Main Board Version : 0255
ROM Version        : S4.A1 08/13/2001
PORT_A Configuration : T1 Long-haul
PORT_B Configuration : E1
PORT_C Configuration : E1
PORT_D Configuration : V.35
Ethernet Port       : Available
SNMP                 : Available

<< Press ESC key to return to previous menu >>
```

## Chapter 6 Terminal Operations

### 6.6 Alarm History

To show the alarm history report, enter H. Use up and down keys to switch between pages.

```
=== Alarm History Report ===                                03:52:25 08/15/2002
LOCAL Start Time = 03:52:21 08/15/2002
PORT_A (T1): [TYPE] [THRES] [CUR-STA] [COUNT] [ALARM]
              YEL          OK          0  ENABLE
              AIS          OK          0  ENABLE
              LOS          OK          0  ENABLE
              LOF          OK          0  ENABLE
              BPV    10E-5  OK          0  ENABLE
              ES           1  OK          0  ENABLE
              UAS           1  OK          0  ENABLE
              CSS           1  OK          0  ENABLE
PORT_B (T1): [TYPE] [THRES] [CUR-STA] [COUNT] [ALARM]
              YEL          OK          0  ENABLE
              AIS          OK          0  ENABLE
              LOS          OK          0  ENABLE
              LOF          OK          0  ENABLE
              BPV    10E-5  OK          0  ENABLE
              ES           1  OK          0  ENABLE
              UAS           1  OK          0  ENABLE
              CSS           1  OK          0  ENABLE
              PROTECTION    OK          0  ENABLE (for PORT_A and PORT_B)
              CLOCK LOSS    OK          0  ENABLE
<< Press 'DOWN' or 'UP' ARROW KEY to switch between PAGES >>
<< Press ESC key to Return to Main Menu >>
```

```
=== Alarm History Report ===                                10:58:16 09/28/2001
LOCAL Start Time = 10:43:23 09/28/2001
PORT_C (E1): [TYPE] [THRES] [CUR-STA] [COUNT] [ALARM]
              RAI          DISABLE    0  DISABLE
              AIS          DISABLE    0  DISABLE
              LOS          DISABLE    0  DISABLE
              LOF          DISABLE    0  DISABLE
              BPV    10E-5  DISABLE    0  DISABLE
              ES           1  DISABLE    0  DISABLE
              UAS           1  DISABLE    0  DISABLE
              CSS           1  DISABLE    0  DISABLE
PORT_D (V35): [TYPE] [THRES] [CUR-STA] [COUNT] [ALARM]
              DTE          DISABLE    0  DISABLE
              PROTECTION    DISABLE    0  DISABLE
              CLOCK LOSS    DISABLE    0  DISABLE
<< Press 'DOWN' or 'UP' ARROW KEY to switch between PAGES >>
<< Press ESC key to Return to Main Menu >>
```

### 6.7 System Status

To show the system status, enter I.

```

=== System Status ===                                     10:58:28 09/28/2001
-- PORT_A (E1) --
  LOS      : YES
  LOF      : FAS+MFAS
  RCV AIS  : NO
  RCV RAI  : NO
  XMT AIS  : AIS
  XMT RAI  : NO
  BPV ERROR COUNT : 0
  ES ERROR COUNT  : 0
  NEAR-END LOOPBACK : OFF

-- PORT_B (E1) --
  LOS      : YES
  LOF      : FAS+MFAS
  RCV AIS  : NO
  RCV RAI  : NO
  XMT AIS  : AIS
  XMT RAI  : NO
  BPV ERROR COUNT : 0
  ES ERROR COUNT  : 0
  NEAR-END LOOPBACK : OFF

-- PORT_C (E1) --
  LOS      : YES
  LOF      : FAS+MFAS
  RCV AIS  : NO
  RCV RAI  : NO
  XMT AIS  : AIS
  XMT RAI  : NO
  BPV ERROR COUNT : 0
  ES ERROR COUNT  : 0
  NEAR-END LOOPBACK : OFF

-- PORT_D (V.35) --
  RTS Loss : NO
  Clock Loss : NO

<< ESC key to return to previous menu, SPACE bar to refresh >>

```

For T1 type ports, the possible displays for the status are as follows:

```

LOS      : NO/YES
LOF      : NO/YES
RCV AIS  : NO/AIS
RCV YEL  : NO/YEL
XMT AIS  : NO/AIS
XMT YEL  : NO/YEL

```

For E1 type ports, the possible displays for the status are as follows:

```

LOS      : NO/YES
LOF      : NO/FAS/MFAS/FAS+MFAS
RCV AIS  : NO/AIS/TS16AIS
RCV RAI  : NO/RAI/MFRAI/RAI+MFRAI
XMT AIS  : NO/ AIS
XMT RAI  : NO/RAI/MFRAI/RAI+MFRAI

```

Where

```

FAS      means frame alignment sync loss,
MFAS     means multiframe alignment sync loss (CAS)
AIS      means alarm indication signal
TS16AIS  means time slot 16 alarm indication signal
RAI      means remote alarm indication of remote LOS or LOF
MFRAI    means multiframe remote alarm indication of remote MFAS

```

### 6.8 Alarm Queue

To show the alarm queue report, enter Q.

```

=== Alarm Queue ===                                     01:08:25 01/12/1998
1 -- LOS , PORT_A , 01:05:45 01/12/98
2 -- LOF , PORT_A , 01:05:45 01/12/98

<< SPACE bar to refresh or ESC key return to main menu >>

```

The latest 40 alarm entries are shown on the terminal as above in two pages of 20 entries each. If there are more than 20 entries, press any key other than ESC key to view the second page.

## Chapter 6 Terminal Operations

### 6.9 Loopback Test

Press “L” to setup loopback test, the following screen will show up. Use TAB key to select the desired port. The current selection will be highlighted by an asterisk (\*).

**NOTE:** If you will be doing any loopback testing while in inband management mode you must set the loopback timer. See section 6.12.13 Inband Management for details.

```
=== Loopback Test ===                                03:03:41 08/13/2002

<< ARROW LEFT/RIGHT: Select one port; Enter: Accept; ESC: Exit. >>

Select one port:  *Port_A      Port_B      Port_C      Port_D
```

Press ENTER from the above screen, then the screen will show as below. The current selection will be highlighted by an asterisk (\*).

```
=== Loopback Test ===                                11:51:35 07/17/2003
ARROW KEYS : CURSOR MOVE, ENTER KEY : ITEM SELECT

PORT_A  T1

- Near-End Loopback :
  *OFF  LOCAL  PLB  LLB
- Send Loopback Active Code To Far-End :
  *IN-BAND  AT&T-P  ANSI-P  ANSI-L
- Send Loopback Deactive Code To Far-End :
  *IN-BAND  AT&T-P  ANSI-P  ANSI-L
- SEND QRSS/PRBS:
  *OFF  FULL

<< Press ESC key to return to previous menu >>
```

```
=== Loopback Test ===                                11:51:16 07/17/2003
ARROW KEYS : CURSOR MOVE, ENTER KEY : ITEM SELECT

PORT_B  E1

- Near-End Loopback :
  *OFF  LOCAL  PLB  LLB
- Send Loopback Active Code To Far-End :
  *PAYLOAD  LINE
- Send Loopback Deactive Code To Far-End :
  *PAYLOAD  LINE
- SEND QRSS/PRBS:
  *OFF  FULL

<< Press ESC key to return to previous menu >>
```

## Chapter 6 Terminal Operations

### 6.10 Alarm Setup

To enter the alarm setup menu, enter M. Use up and down arrow keys to make the selection.

```
=== Alarm Setup ===                                03:48:30 08/15/2002
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS
PORT_A (T1):[TYPE] [THRES] [ALARM]    PORT_C (NONE):[TYPE] [THRES] [ALARM]
      YEL                      ENABLE
      AIS                      ENABLE
      LOS                      ENABLE
      LOF                      ENABLE
      BPV      10E- 5    ENABLE
      ES              001  ENABLE
      UAS              001  ENABLE
      CSS              001  ENABLE
PORT_B (T1):[TYPE] [THRES] [ALARM]    PORT_D (NONE):[TYPE] [THRES] [ALARM]
      YEL                      ENABLE
      AIS                      ENABLE
      LOS                      ENABLE
      LOF                      ENABLE
      BPV      10E- 5    ENABLE
      ES              001  ENABLE
      UAS              001  ENABLE
      CSS              001  ENABLE
Port A & B: PROTECTION      ENABLE
      CLOCK LOSS      ENABLE
                                     ALARM DISPLAY      ENABLE
<< Press ESC key to return to previous menu >>
```

### 6.11 Password Setup

Press P for the display of the password setup and choose to change password or not.

The default password is: LOOP

```
=== Password Setup ===                            09:09:01 12/10/1997
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

Enable Password : NO
Change Password : NO

<< Press ESC key to return to previous menu >>
```

When Change Password is chosen, the following is shown.

```
=== Password Setup ===                            09:09:01 12/10/1997
ARROW KEYS: CURSOR MOVE, BACKSPACE to edit, ESC to abort

      Enable Password : NO
      Change Password : YES
      Old   Password : XXXX_____
      New   Password : XXXX_____
      Confirm Password: XXXX_____

>> Save new password (Y/N)?
```

## Chapter 6 Terminal Operations

### 6.12 System Setup

Press "S" from the main menu to enter in the following screen. Use left or right arrow key to select the "SIGNALING" option. The current selection will be highlighted by an asterisk (\*).

```
=== System Setup ===                                     10:12:20 10/01/2001

>> Select setup_group ?  PORT      MAP      SYSTEM  *SIGNALING
```

Press ENTER from the above screen, then the screen will show as below. This screen is used to configure E1 or T1 signaling conversion from PORT A, PORT B, or PORT C. Use left or right arrow key to select a desired port. The current selection will be highlighted by an asterisk (\*). As this example shows, PORT\_A is the current selection.

```
=== System Setup (SIGNALING) ===                         10:12:26 10/01/2001

>> Select one port ? *PORT_A  PORT_B  PORT_C
```

Press ENTER to enter in the next screen

The signaling setting of PORT B and PORT C are available to be modified.

```
=== System Setup (SIGNALING) ===                         10:12:35 10/01/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS, ENTER: SELECT PREDEFINED SETTING

[PORT A (T1)] ==> [PORT B (E1)] [PORT C (E1)]
  A B C D        A B C D        A B C D
-----
  0 0 0 0        0 0 0 0        0 0 0 0
  0 0 0 1        0 0 0 1        0 0 0 1
  0 0 1 0        0 0 1 0        0 0 1 0
  0 0 1 1        0 0 1 1        0 0 1 1
  0 1 0 0        0 1 0 0        0 1 0 0
  0 1 0 1        0 1 0 1        0 1 0 1
  0 1 1 0        0 1 1 0        0 1 1 0
  0 1 1 1        0 1 1 1        0 1 1 1
  1 0 0 0        1 0 0 0        1 0 0 0
  1 0 0 1        1 0 0 1        1 0 0 1
  1 0 1 0        1 0 1 0        1 0 1 0
  1 0 1 1        1 0 1 1        1 0 1 1
  1 1 0 0        1 1 0 0        1 1 0 0
  1 1 0 1        1 1 0 1        1 1 0 1
  1 1 1 0        1 1 1 0        1 1 1 0
  1 1 1 1        1 1 1 1        1 1 1 1

<< Press ESC key to return to previous menu >>
```



## Chapter 6 Terminal Operations

Move the cursor at the signaling setting of PORT B or PORT C, then press ENTER, the system will show up a prompt asking for selecting a predefined setting. Use left or right arrow key to select predefined setting, Transparent or Inverted, then press ENTER, the system will update the current setting of PORT B or PORT C.

```

=== System Setup (SIGNALING) ===                               10:12:35 10/01/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS, ENTER: SELECT PREDEFINED SETTING

[PORT A (T1)] ==> [PORT B (E1)] [PORT C (E1)]
  A B C D          A B C D          A B C D
-----
  0 0 0 0          0 0 0 0          0 0 0 0
  0 0 0 1          0 0 0 1          0 0 0 1
  0 0 1 0          0 0 1 0          0 0 1 0
  0 0 1 1          0 0 1 1          0 0 1 1
  0 1 0 0          0 1 0 0          0 1 0 0
  0 1 0 1          0 1 0 1          0 1 0 1
  0 1 1 0          0 1 1 0          0 1 1 0
  0 1 1 1          0 1 1 1          0 1 1 1
  1 0 0 0          1 0 0 0          1 0 0 0
  1 0 0 1          1 0 0 1          1 0 0 1
  1 0 1 0          1 0 1 0          1 0 1 0
  1 0 1 1          1 0 1 1          1 0 1 1
  1 1 0 0          1 1 0 0          1 1 0 0
  1 1 0 1          1 1 0 1          1 1 0 1
  1 1 1 0          1 1 1 0          1 1 1 0
  1 1 1 1          1 1 1 1          1 1 1 1
Select predefined setting: *Transparent    Inverted
<< Press ESC key to return to previous menu >>

```

As the following example shows, the signaling setting for PORT B is transparent from PORT A and the predefined setting for PORT C is inverted from PORT A.

```

=== System Setup (SIGNALING) ===                               13:34:42 09/28/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS, ENTER: SELECT PREDEFINED SETTING

[PORT A (T1)] ==> [PORT B (E1)] [PORT C (E1)]
  A B C D          A B C D          A B C D
-----
  0 0 0 0          1 1 1 1          0 0 0 0
  0 0 0 1          1 1 1 0          0 0 0 1
  0 0 1 0          1 1 0 1          0 0 1 0
  0 0 1 1          1 1 0 0          0 0 1 1
  0 1 0 0          1 0 1 1          0 1 0 0
  0 1 0 1          1 0 1 0          0 1 0 1
  0 1 1 0          1 0 0 1          0 1 1 0
  0 1 1 1          1 0 0 0          0 1 1 1
  1 0 0 0          0 1 1 1          1 0 0 0
  1 0 0 1          0 1 1 0          1 0 0 1
  1 0 1 0          0 1 0 1          1 0 1 0
  1 0 1 1          0 1 0 0          1 0 1 1
  1 1 0 0          0 0 1 1          1 1 0 0
  1 1 0 1          0 0 1 0          1 1 0 1
  1 1 1 0          0 0 0 1          1 1 1 0
  1 1 1 1          0 0 0 0          1 1 1 1
<< Press ESC key to return to previous menu >>

```

## Chapter 6 Terminal Operations

### 6.12.1 Port

When PORT is chosen, the following screens will show up.

#### Example 1:

```
=== System Setup (PORTS) ===                                10:59:19 09/28/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

PORT_A: FRAME=FAS      CODE=HDB3  RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)                   CGA=NORM   OOS=BUSY  IDLE=D5
PORT_B: FRAME=FAS      CODE=HDB3  RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)                   CGA=NORM   OOS=BUSY  IDLE=D5
PORT_C: FRAME=FAS      CODE=HDB3  RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)                   CGA=NORM   OOS=BUSY  IDLE=D5
PORT_D: RATE =64K DATA=Normal  RTS=Active  TTM=Off  Clock=Normal
(V.35)

MAST-CLOCK: PORT_C      2nd-CLK: PORT_C      CURRENT=INTERNAL

PROTECT A by B: ENABLE  CRITERIA: ALARM      REVERT to A: AUTO
PROTECT B by A: ENABLE

Note: If any V.35 port is selected as the clock source, its TTM setting will
      be ignored and internally be forced to ON.

<< Press ESC key to return to previous menu >>
```

Arrow keys are used to move cursor to select the field to be changed. As the cursor moves from field to field, the second line on the screen shows the available input for field. After making all the changes, enter Esc key and answer yes to take the changes into effect.

#### Example 2: (See also Appendix A for detail procedure of this example.)

Move the cursor to set FRAME of PORT\_A as NONE, press ESC.

For E1 frame is fixed to on. FAS means frame alignment signal. For T1 frame can be D4, ESF, ESF&T1.403, and NONE. NONE means clear channel.

```
=== System Setup (PORTS) ===                                01:55:16 07/30/2002
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

PORT_A: FRAME=NONE      CODE=B8ZS  YEL=ON   INBAND=ON  AIS=FRAME  CAS=OFF
(T1)   INTF =LONG HAUL  EQU=0 dB   CGA=NORM   OOS=BUSY  IDLE=FF
PORT_B: FRAME=FAS      CODE=HDB3  RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)                   CGA=NORM   OOS=BUSY  IDLE=D5

MAST-CLOCK: PORT_A      2nd-CLK: PORT_A      CURRENT=MAST-CLOCK (PORT_A )

PROTECT A by B: ENABLE  CRITERIA: ALARM      REVERT to A: AUTO
PROTECT B by A: ENABLE

Note: If any V.35 port is selected as the clock source, its TTM setting will
      be ignored and internally be forced to ON.

<< Press ESC key to return to previous menu >>
```

## Chapter 6 Terminal Operations

Then press “Y” to confirm the setting, the following screen will show up.  
Because PORT\_A T1 = NONE, default TSI map must be used.

```
====System Setup(TSI Default Map Selection)====
ESC key to exit!

Item  Connection Link  Used Ports  Remarks
-----
  1    T1<----->E1      A, B      T1(frame=NONE); E1(frame=ON)
  2                                     Abort.

If Item=2 is selected, the default TSI map is inactive.
Please set the T1 port's Fram Format Mode to D4/ESF/ESF&T1.403

Note:Since some T1 ports are set as unframe, user should use
LEFT/RIGHT ARROW key to select to default TSI map.

Item Selection: *1      2
```

### Example 3:

```
==== System Setup (PORTS) ====                                03:00:03 08/13/2002
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

PORT_A: FRAME=ESF      CODE=B8ZS YEL=ON  INBAND=ON  AIS=FRAME  CAS=OFF
(T1)   INTF =LONG HAUL EQU=0 dB    CGA=NORM   OOS=BUSY  IDLE=FF
PORT_B: FRAME=ESF      CODE=B8ZS YEL=ON  INBAND=ON  AIS=FRAME  CAS=OFF
(T1)   INTF =LONG HAUL EQU=0 dB    CGA=NORM   OOS=BUSY  IDLE=FF

MAST-CLOCK: PORT_A      2nd-CLK: PORT_A    CURRENT=MAST-CLOCK (PORT_A )

PROTECT A by B: ENABLE  CRITERIA: ALARM    REVERT to A: 
PROTECT B by A: ENABLE

Note: If any V.35 port is selected as the clock source, its TTM setting will
      be ignored and internally be forced to ON.

<< Press ESC key to return to previous menu >>
```

## Chapter 6 Terminal Operations

When “PROTECT B by A” is enabled, and “REVERT to A” is set to “AUTO” as the above screen shows, the following screen will show up with warning message and correct procedure.

```
ESC key to exit!
'The REVERT to A' is no meaning, if 'PROTECT B by A' is enabled.

The working procedure are follows:
(Case 1.) 'PROTECT A by B'=ENABLE; 'REVERT to A'=AUTO; 'PROTECT B by A'=DISABLE.
    1. The working port is Port_A. The backup port is Port_B.
       The TSI channel map should be setup for Port_A.
    2. If Port_A fails, Port_B becomes working port.
    3. If Port_A is fixed, Port_A will become working port
       and Port_B becomes backup again after five minutes

(Case 2.) 'PROTECT A by B'=ENABLE; 'REVERT to A'=MANUAL; 'Protect B by A'=DISABL
E.
    1. The working port is Port_A. The backup port is Port_B.
       The TSI channel map should be setup for Port_A.
    2. If Port_A fails, Port_B becomes working port.
    3. If Port_A is fixed, Port_B is still a working port.
    4. Execpt that user use 'X' command in 'main menu' to revert to A

(Case 3.) 'PROTECT A by B'=ENABLE; 'PROTECT B by A'=ENABLE.
    1. Port_A is working; Port_B is backup.
    2. When Port_A fails, Port_B is working.
    3. Port_A is fixed and become backup; Port_B is still working.
    4. Port_A becomes working when Port_B fails.
```

Press ESC key to exit from the above menu. The option, REVERT to A, will be reset as “MANUAL” from “AUTO” automatically.

```
=== System Setup (PORTS) ===                                03:00:03 08/13/2002
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

PORT_A: FRAME=ESF      CODE=B8ZS YEL=ON   INBAND=ON   AIS=FRAME   CAS=OFF
(T1)    INTF =LONG HAUL EQU=0 dB         CGA=NORM   OOS=BUSY   IDLE=FF
PORT_B: FRAME=ESF      CODE=B8ZS YEL=ON   INBAND=ON   AIS=FRAME   CAS=OFF
(T1)    INTF =LONG HAUL EQU=0 dB         CGA=NORM   OOS=BUSY   IDLE=FF

MAST-CLOCK: PORT_A      2nd-CLK: PORT_A    CURRENT=MAST-CLOCK (PORT_A )

PROTECT A by B: ENABLE  CRITERIA: ALARM    REVERT to A: 
PROTECT B by A: ENABLE

Note: If any V.35 port is selected as the clock source, its TTM setting will
      be ignored and internally be forced to ON.

<< Press ESC key to return to previous menu >>
```

## Chapter 6 Terminal Operations

### Example 4:

When the time slot carries voice, the coding of voice is showed as **E1 Mu** or **T1 A** by default, see below screen. Use TAB key to switch A-law to Mu-law or Mu-law to A-law.

**Mu** means Mu-law and **A** means A-law.

```
=== System Setup (PORTS) ===                               10:59:19 09/28/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

PORT_A: FRAME=NONE      CODE=B8ZS  YEL=ON    INBAND=ON    AIS=FRAME    CAS=OFF
(T1 A ) INTF =LONG HAUL  EQU=0 dB    CGA=NORM     OOS=BUSY     IDLE=FF
PORT_B: FRAME=FAS       CODE=HDB3  RAI=ON    CRC=ON       AIS=FRAME    CAS=OFF
(E1 Mu)                  CGA=NORM     OOS=BUSY     IDLE=D5
PORT_C: FRAME=FAS       CODE=HDB3  RAI=ON    CRC=ON       AIS=FRAME    CAS=OFF
(E1 Mu)                  CGA=NORM     OOS=BUSY     IDLE=D5
PORT_D: RATE =64K DATA=Normal  RTS=Active  TTM=Off  Clock=Normal
(V.35)

MAST-CLOCK: PORT_C      2nd-CLK: PORT_C      CURRENT=INTERNAL

PROTECT A by B: ENABLE  CRITERIA: ALARM      REVERT to A: AUTO
PROTECT B by A: ENABLE

Note: If any V.35 port is selected as the clock source, its TTM setting will
      be ignored and internally be forced to ON.

<< Press ESC key to return to previous menu >>
```

### 6.12.2 MAP

When MAP is chosen, the following is shown.

### Example 1:

```
=== System Setup (MAP) ===                               10:59:26 09/28/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

TIME PORT A      PORT B      PORT C      PORT D      TIME PORT A      PORT B      PORT C      PORT D
SLOT NON-CAS    NON-CAS    NON-CAS    SLOT T1      E1          E1          V.35
=====
1  d B 01  d A 01  d D 01  d C 01  17  d B 17  d A 17  d D 17  d C 17
2  d B 02  d A 02  d D 02  d C 02  18  d B 18  d A 18  d D 18  d C 18
3  d B 03  d A 03  d D 03  d C 03  19  d B 19  d A 19  d D 19  d C 19
4  d B 04  d A 04  d D 04  d C 04  20  d B 20  d A 20  d D 20  d C 20
5  d B 05  d A 05  d D 05  d C 05  21  d B 21  d A 21  d D 21  d C 21
6  d B 06  d A 06  d D 06  d C 06  22  d B 22  d A 22  d D 22  d C 22
7  d B 07  d A 07  d D 07  d C 07  23  d B 23  d A 23  d D 23  d C 23
8  d B 08  d A 08  d D 08  d C 08  24  d B 24  d A 24  d D 24  d C 24
9  d B 09  d A 09  d D 09  d C 09  25  d      00  d D 25  d C 25
10 d B 10  d A 10  d D 10  d C 10  26  d      00  d D 26  d C 26
11 d B 11  d A 11  d D 11  d C 11  27  d      00  d D 27  d C 27
12 d B 12  d A 12  d D 12  d C 12  28  d      00  d D 28  d C 28
13 d B 13  d A 13  d D 13  d C 13  29  d      00  d D 29  d C 29
14 d B 14  d A 14  d D 14  d C 14  30  d      00  d D 30  d C 30
15 d B 15  d A 15  d D 15  d C 15  31  d      00  d D 31  d C 31
16 d B 16  d A 16  d D 16  d C 16

<< Press ESC key to return to previous menu >>
```

In the above table, Time Slot number applies to originating time slot of all ports. The "d" means the time slot carries data and "v" means voice. If time slot carries voice, A-law to  $\mu$ -law conversion is automatic. Under PORT A, NON-CAS means CAS (carrier associated signaling) is not used. When PORT field is blank, IDLE code under PORT setup is sent, d B 01 means that time slot 1 of PORT A is assigned to PORT B time slot 1, and vice versa.

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On the right hand 4 columns, time slots above 16 are displayed. Under PORT A, T1 means the port type is T1, thus time slots 17 to 24 are available. Under PORT B, E1 means the port type is E1, thus time slots 17 to 31 are available. Under PORT D, V.35 means the port type is DTE(V.35), thus time slots 17 to 31 are available.

When CAS is chosen for an E1 port, time-slot 16 is not available for assignment. This is because, for E1, time slot 16 is used to carry the CAS information.

**NOTE:** When a time slot from a CAS part is assigned to a NON-CAS port, all CAS signaling information is lost. Therefore, such assignments are usually made for time slots carrying data.

To change any of the MAP settings, use the arrow keys to move the cursor to the desired field and then modify that field. Modification of fields is either (a) by using the TAB key to cycle through the options, or (b) for time-slot assignment, by using backspace to erase and by using the numeric keys to enter a new number. For example, when the cursor is at the target port field, pressing the TAB key will cycle the target port from A to B, [C, D, if equipped] and blank, the last to indicate idle assignment. When the target port is blank, the time-slot is 00. When the cursor is at the target time-slot field, user can enter a new last digit, or use the back space key first to enter both digits.

When the user enters a new time-slot assignment, and if the target port and time slot is idle, then the reciprocal assignment is automatically made when the user moves the cursor away from that field. If, however, the target port is not idle but already a part of a pair of time slots previously assigned, then that pair of assignments will flash to warn the user of possible conflicts. If the user chose to ignore the flashing warning and move the cursor away from the field with the desired assignment, then the new target port and time-slot will be changed to reflect the new reciprocal assignment. The third time slot, the other half of the previously assigned pair will be changed to idle.

If the user tries to use time slot 16 of an E1 port with CAS, a warning will be given and the assignment will be ignored.

### Example 2:

The message, “\*The working port is PORT\_A”, will show up only when protection mode is enable.

```
=== System Setup (MAP) ===                                03:01:30 08/13/2002
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS
TIME PORT A  PORT B  PORT C  PORT D  TIME  PORT A  PORT B  PORT C  PORT D
SLOT NON-CAS  NON-CAS          SLOT T1      T1
=====
 1 d A 01 d    00          17 d A 17 d    00
 2 d A 02 d    00          18 d A 18 d    00
 3 d A 03 d    00          19 d A 19 d    00
 4 d A 04 d    00          20 d A 20 d    00
 5 d A 05 d    00          21 d A 21 d    00
 6 d A 06 d    00          22 d A 22 d    00
 7 d A 07 d    00          23 d A 23 d    00
 8 d A 08 d    00          24 d A 24 d    00
 9 d A 09 d    00          25
10 d A 10 d    00          26
11 d A 11 d    00          27
12 d A 12 d    00          28
13 d A 13 d    00          29
14 d A 14 d    00          30
15 d A 15 d    00          31
16 d A 16 d    00
* The working port is PORT_A
<< Press ESC key to return to previous menu >>
```

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Under protection mode, the screen for System Setup (MAP) will show as below when the working port is switched from PORT\_A to PORT\_B.

```
LOF , PORT_A , 03:02:12 08/13/02
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS
TIME PORT A PORT B PORT C PORT D TIME PORT A PORT B PORT C PORT D
SLOT NON-CAS NON-CAS SLOT T1 T1
=====
1 d 00 d B 01 17 d 00 d B 17
2 d 00 d B 02 18 d 00 d B 18
3 d 00 d B 03 19 d 00 d B 19
4 d 00 d B 04 20 d 00 d B 20
5 d 00 d B 05 21 d 00 d B 21
6 d 00 d B 06 22 d 00 d B 22
7 d 00 d B 07 23 d 00 d B 23
8 d 00 d B 08 24 d 00 d B 24
9 d 00 d B 09 25
10 d 00 d B 10 26
11 d 00 d B 11 27
12 d 00 d B 12 28
13 d 00 d B 13 29
14 d 00 d B 14 30
15 d 00 d B 15 31
16 d 00 d B 16
* The working port is PORT_B
<< Press ESC key to return to previous menu >>
```

### 6.12.3 Inband Management Setup

**NOTE:** If you plan to do any loopback testing while in the Inband Management (HDLC) mode you must set the loopback timer for a period (in seconds) suitable to your testing requirements. Since the timer is not stored into non-volatile memory you must reset it each time you do loopback testing. If you will not be doing any loopback testing while in the Inband Management mode, leave the timer at its default setting of "0" seconds. For more information please refer to the note in section 3.10, Inband Management Setup, in this manual

**NOTE:** For optimal performance, please limit the use of inband to 4 nodes per 64 kbps.

On the System Setup (SYSTEM) screen change the IP Interface to INBAND-PORT. A Loopback Timer label will then appear on your screen. Both of these items have been highlighted for demonstration purposes in the sample screen shown below. If you will do loopback testing while in the Inband Management mode, key in a period of seconds adequate for your testing requirements. Otherwise leave the timer at its default setting of "0" seconds. Check the screen to make sure that the IP address, Subnet Mask and Default Gateway are all correct. Press ESC to save.

```
=== System Setup (SYSTEM) === 13:32:07 06/28/2002
ARROW KEYS: CURSOR MOVE, Please Input: nnn.nnn.nnn.nnn, BACKSPACE to edit
Time/Date :13:32:07 06/28/2002
IP Address :140.134.10.11 Subnet Mask : 000.000.000.000
Trap IP Address:255.255.255.255 Default Gateway: 000.000.000.000
Community Name :public
Device Name :LOOP-V-01
System Location:8F, No. 8, Hsin Ann Rd. Science-Based Industrial Park Hsinchu, 3
0077 Taiwan

System Contact :Name: FAE Tel: +886-3-5787696 Fax: +886-3-5787695 E-mail: FAE
@loop.com.tw

IP Interface :INBAND_PORT Loopback Timer : 100
[SUPV port]
Baud Rate :9600
Data Length :8-Bits
Stop Bit :1-Bit
Parity :NONE
XON-XOFF :OFF
```

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<< Press ESC key to return to previous menu >>

Set up the TSI Map to drop a DS0 time slot from a T1/E1 line and insert it into the inband management port. In the highlighted, sample screen below time slot 25 of Port C was vacant, so we set the cursor there with the arrow keys, and then used the TAB key to scroll in M, for inband management.

```

=== System Setup (MAP) ===                                     10:59:26 09/28/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS
TIME PORT A    PORT B    PORT C    PORT D    TIME PORT A    PORT B    PORT C    PORT D
SLOT NON-CAS  NON-CAS  NON-CAS  SLOT T1      E1        E1        V.35
=====
 1 d B 01 d A 01 d D 01 d C 01 17 d B 17 d A 17 d D 17 d C 17
 2 d B 02 d A 02 d D 02 d C 02 18 d B 18 d A 18 d D 18 d C 18
 3 d B 03 d A 03 d D 03 d C 03 19 d B 19 d A 19 d D 19 d C 19
 4 d B 04 d A 04 d D 04 d C 04 20 d B 20 d A 20 d D 20 d C 20
 5 d B 05 d A 05 d D 05 d C 05 21 d B 21 d A 21 d D 21 d C 21
 6 d B 06 d A 06 d D 06 d C 06 22 d B 22 d A 22 d D 22 d C 22
 7 d B 07 d A 07 d D 07 d C 07 23 d B 23 d A 23 d D 23 d C 23
 8 d B 08 d A 08 d D 08 d C 08 24 d B 24 d A 24 d D 24 d C 24
 9 d B 09 d A 09 d D 09 d C 09 25 d M 25 d D 25 d C 25
10 d B 10 d A 10 d D 10 d C 10 26 d    00 d D 26 d C 26
11 d B 11 d A 11 d D 11 d C 11 27 d    00 d D 27 d C 27
12 d B 12 d A 12 d D 12 d C 12 28 d    00 d D 28 d C 28
13 d B 13 d A 13 d D 13 d C 13 29 d    00 d D 29 d C 29
14 d B 14 d A 14 d D 14 d C 14 30 d    00 d D 30 d C 30
15 d B 15 d A 15 d D 15 d C 15 31 d    00 d D 31 d C 31
16 d B 16 d A 16 d D 16 d C 16

<< Press ESC key to return to previous menu >>

```



### 6.13 Retrieve Last Stored Configuration

To retrieve stored configuration, press R. The stored configuration will replace the current configuration. The last current configuration will be lost.

After pressing R, the user will be asked to confirm.

```
=>> Retrieve Last Stored Configuration (Y/N)?
```

The user is then asked to select whether to retrieve the system configuration or the TSI map.

```
=== Retrieve Configuration ===                               13:30:16 04/29/1998

>> Select a group ? *SYSTEM MAP
```

Use the left or right arrow keys to select and press ENTER.

### 6.14 Store Current Configuration

To store the current configuration, press V. The current configuration will replace the currently stored configuration. The last stored configuration will be lost.

After pressing V, the user will be asked to confirm.

```
=>> Store Configuration (Y/N)?
```

The user is then asked to select whether to store the system configuration or the TSI map.

```
=== Store Configuration ===                               13:30:16 04/29/1998

>> Select a group ? *SYSTEM MAP
```

### 6.15 Download Firmware

Under the main menu, press "T" to download firmware. The screen will show as below.

```
=== Download Firmware ===                               16:48:55 09/28/2001
ARROW KEYS: CURSOR MOVE, BACKSPACE to edit, ESC to abort

Firmware 1 Version   : V4.01 09/17/2001
Firmware 2 Version   : V4.01 09/17/2001
Current Firmware Bank: 1
Next Boot Firmware   : 0
TFTP Server IP       : 140.132.1.156
Firmware File Name    : V4300.RUN_____
Download to Firmware : 2

<< Press ESC key to return to previous menu >>
```

### 6.16 Load Default Configuration

To load the factory default configuration, press N. The factory default configuration will replace the current configuration. The current configuration will be lost. User will be asked to confirm.

### 6.17 Clear Alarm Queue

To clear alarm queue, press U.

### 6.18 Clear Performance Data

To clear performance data, press Y. This clears the ESF error count register as well. See Table 3.7 for which reports will be cleared.

### 6.19 System Reset

Press Z for reset, which is equivalent to powering down and powering up the unit. With this command, the system will restart from the initial routine and perform all power-up diagnostics procedures. The user will be asked for confirmation.

### 6.20 Clear Alarm LED

Press B to clear the alarm LED.

## Chapter 6 Terminal Operations

### 6.21 Unprotect Port A

1 for 1 protection is only supported for Port B protecting Port A with same type of plug-ins, E1 or T1. Port A is normally the working port and Port B the standby port. When these alarms (LOS, LOF, or YEL/ RAI) are declared for Port A, traffic will be switched to Port B.

Restoration is either AUTO (automatic) or MANUAL (manual). Either automatic or manual, when Port A is failed, traffic will automatically switch from Port A to Port B. When automatic, when Port A is recovered, traffic will automatically switch back to Port A. When manual, traffic will not switch until a manual command, by pressing "X" from the Main Menu to revert to Port A, as the next screen shows. Restoration, whether automatic or manual, should be consistent on both sides of the protected line pair.

Two criteria of protection are available, ALARM and LINE.

For ALARM, the protection is activated by declaration of these alarms: LOS, LOF, and YEL/ RAI. The time for system declares alarm is about 2.5 sec  $\pm$  0.5.

For LINE, the protection is activated by real-time line status of LOS, LOF, and YEL/ RAI. The time for system enable 1 for 1 protection is under 50 ms.

Note that the setting for CRITERIA and REVERT to A are not enabled until the option, PROTECT A by B, is set as ENABLE.

```
=== System Setup (PORTS) ===                               10:59:19 09/28/2001
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

PORT_A: FRAME=FAS      CODE=HDB3 RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)                   CGA=NORM    OOS=BUSY   IDLE=D5
PORT_B: FRAME=FAS      CODE=HDB3 RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)                   CGA=NORM    OOS=BUSY   IDLE=D5
PORT_C: FRAME=FAS      CODE=HDB3 RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)                   CGA=NORM    OOS=BUSY   IDLE=D5
PORT_D: RATE =64K DATA=Normal  RTS=Active  TTM=Off  Clock=Normal
(V.35)

MAST-CLOCK: PORT_C      2nd-CLK: PORT_C    CURRENT=INTERNAL

PROTECT A by B: ENABLE  CRITERIA: ALARM    REVERT to A: MANUAL
PROTECT B by A: ENABLE

Note: If any V.35 port is selected as the clock source, its TTM setting will
      be ignored and internally be forced to ON.

<< Press ESC key to return to previous menu >>
```

```
Loop-V                               === Main Menu ===                               10:59:59 09/28/2001

[DISPLAY]                           [SETUP]
1  -> 1-Hour Performance Report      L  -> Loopback Test
2  -> 24-Hour Performance Report     M  -> Alarm Setup
A  -> Line Availability              P  -> Password Setup
C  -> System Setup Display           S  -> System Setup
D  -> System Description             R  -> Retrieve Last Stored Configuration
H  -> Alarm History                 V  -> Store Current Configuration
I  -> System Status                 T  -> Download Firmware
Q  -> Alarm Queue

[ACCESS]                           [CLEAR & RESET]
F  -> Log Off [SETUP] and            N  -> Load Default Config and Reset Sys.
    [CLEAR & RESET] menu             U  -> Clear Alarm Queue
O  -> Log On  [SETUP] and            Y  -> Clear Performance Data
    [CLEAR & RESET] menu             Z  -> System Reset
                                      B  -> Clear Alarm LED
                                      X  -> Revert to Port A

Change to Port A - are you sure ? [Y/N]
```

## 7. Appendix A – Clear Channel T1 to E1

```

Loop-V                === Main Menu ===                10:59:59 09/28/2001

[DISPLAY]
1  -> 1-Hour Performance Report
2  -> 24-Hour Performance Report
A  -> Line Availability
C  -> System Setup Display
D  -> System Description
H  -> Alarm History
I  -> System Status
Q  -> Alarm Queue

[ACCESS]
F  -> Log Off [SETUP] and
    [CLEAR & RESET] menu
O  -> Log On  [SETUP] and
    [CLEAR & RESET] menu

[SETUP]
L  -> Loopback Test
M  -> Alarm Setup
P  -> Password Setup
S  -> System Setup
R  -> Retrieve Last Stored Configuration
V  -> Store Current Configuration
T  -> Download Firmware

[CLEAR & RESET]
N  -> Load Default Config and Reset Sys.
U  -> Clear Alarm Queue
Y  -> Clear Performance Data
Z  -> System Reset
B  -> Clear Alarm LED
X  -> Revert to Port A

>>Enter command ?

```

Press "S" from the main menu to enter in the following screen. Use left or right arrow key to select the "PORT" option. The current selection will be highlighted by an asterisk (\*).

```

=== System Setup ===                10:12:20 10/01/2001

>> Select setup group ?  *PORT  MAP  SYSTEM  SIGNALING

```

Press ENTER from the above screen, the following screens will show up.

Arrow keys are used to move cursor to select the field to be changed. As the cursor moves from field to field, the second line on the screen shows the available input for field. After making all the changes, enter Esc key and answer yes to take the changes into effect.

Move the cursor to set FRAME of PORT\_A as NONE, press ESC.

For E1 frame is fixed to on. FAS means frame alignment signal. For T1 frame can be D4, ESF, ESF&T1.403, and NONE. NONE means clear channel.

```

=== System Setup (PORTS) ===                01:55:16 07/30/2002
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS

PORT_A: FRAME=NONE      CODE=B8ZS  YEL=ON   INBAND=ON  AIS=FRAME  CAS=OFF
(T1)   INTF =LONG HAUL  EQU=0 dB   CGA=NORM  OOS=BUSY  IDLE=FF
PORT_B: FRAME=FAS      CODE=HDB3  RAI=ON   CRC=ON    AIS=FRAME  CAS=OFF
(E1)   CGA=NORM  OOS=BUSY  IDLE=D5

MAST-CLOCK: PORT_A      2nd-CLK: PORT_A      CURRENT=MAST-CLOCK (PORT_A  )

PROTECT A by B: ENABLE  CRITERIA: ALARM    REVERT to A: MANUAL
PROTECT B by A: ENABLE

Note: If any V.35 port is selected as the clock source, its TTM setting will
      be ignored and internally be forced to ON.

<< Press ESC key to return to previous menu >>

```

## Chapter 7 Appendix A

Then press "Y" to confirm the setting, the following screen will show up. Use arrow keys to select default TSI map. Because PORT\_A T1 = NONE, default TSI map must be used.

```

====System Setup(TSI Default Map Selection)====
ESC key to exit!

Item  Connection Link  Used Ports  Remarks
-----
  1    T1<----->E1      A, B      T1(frame=NONE); E1(frame=ON)
  2                                     Abort.

If Item=2 is selected, the default TSI map is inactive.
And the previous Frame Format Mode D4/ESF/ESF&T1.403 is used.

Note:Since some T1 ports are set as unframe, user should use
LEFT/RIGHT ARROW key to select default TSI map.

Item Selection: *1      2

```

Press "S" from the main menu to enter in the following screen. Use left or right arrow key to select the "MAP" option. The current selection will be highlighted by an asterisk (\*).

```

==== System Setup ====                                10:12:20 10/01/2001

>> Select setup group ?  PORT  *MAP  SYSTEM  SIGNALING

```

Press ENTER from the above screen, the following screens will show up.

```

==== System Setup (MAP) ====                                01:58:03 07/30/2002

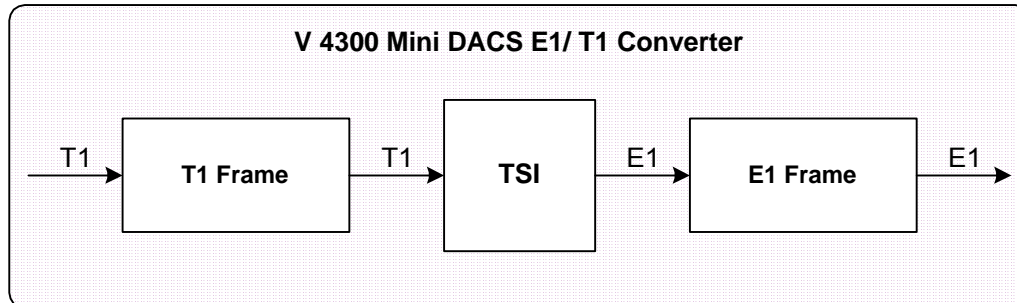
TIME PORT A    PORT B    PORT C    PORT D    TIME PORT A    PORT B    PORT C    PORT D
SLOT NON-CAS  NON-CAS  =====  =====  SLOT T1      E1
=====
  1  d  B  1  d  A  1          17  d  B  17  d  A  17
  2  d  B  2  d  A  2          18  d  B  18  d  A  18
  3  d  B  3  d  A  3          19  d  B  19  d  A  19
  4  d  B  4  d  A  4          20  d  B  20  d  A  20
  5  d  B  5  d  A  5          21  d  B  21  d  A  21
  6  d  B  6  d  A  6          22  d  B  22  d  A  22
  7  d  B  7  d  A  7          23  d  B  23  d  A  23
  8  d  B  8  d  A  8          24  d  B  24  d  A  24
  9  d  B  9  d  A  9          25  d  B  25  d  A  25
 10  d  B 10  d  A 10          26  d  B  26  d  A  26
 11  d  B 11  d  A 11          27                      d
 12  d  B 12  d  A 12          28                      d
 13  d  B 13  d  A 13          29                      d
 14  d  B 14  d  A 14          30                      d
 15  d  B 15  d  A 15          31                      d
 16  d                      d

<< ESC key to return to previous menu, SPACE bar to refresh >>

```

## Chapter 7 Appendix A

For clear channel T1 frame, TS 1 to 15 of T1 is assigned TS 1 to 15 in the TSI, TS 16 to 24 of T1 is assigned TS 17 to 25 in the TSI, and the framing bit (193 bit) of T1 is assigned TS 26 in the TSI.



## **8. Appendix B – Retrieving a Map Configuration from Memory**

### **Retrieving a Map Configuration from Memory while in Protection Mode.**

If the Loop-V4300 unit is configured in protection mode and you are retrieving a map configuration from the unit's memory, a slight anomaly occurs that may unnecessarily concern the user. The unit thinks that a port has died. It thus switches the mapping configuration over to the protection port. Nothing is lost however and service remains unchanged.

This can be unnerving for the user because they might think they made a mistake, when actually, they have not. This anomaly will be rectified in future software.

## 9 APPENDIX C: V4300 E1/T1 Protection

The following protection application was developed for a national telecom carrier in Asia.

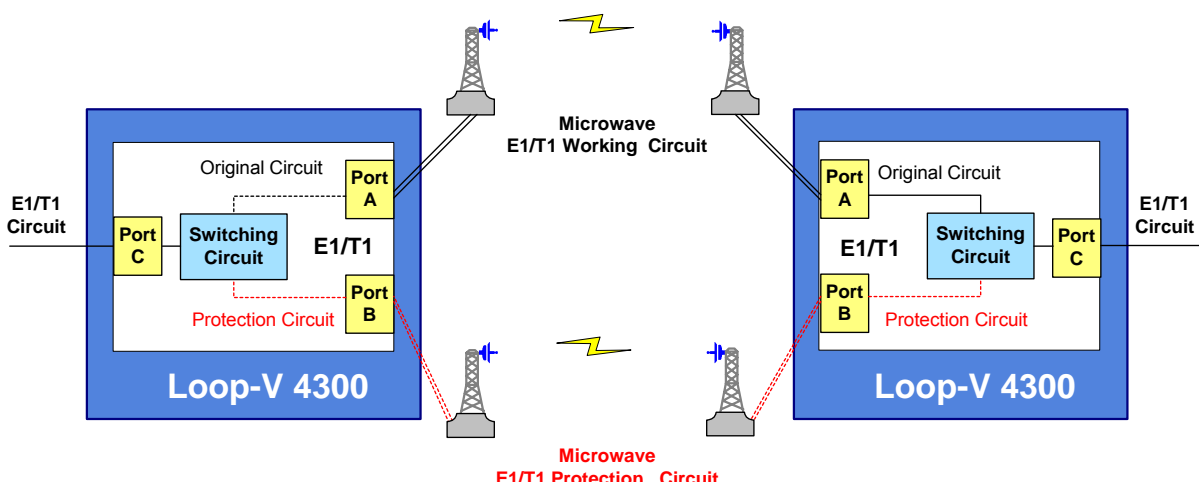


Figure 9- 1 V4300 E1/T1 Protection

### Problem

A national telecom carrier offering microwave service in a rugged, mountainous area required automatic switching from a working line to a protection line (or vice versa) but only if no alarm condition existed on the destination line.

### Solution

Loop came up with the following switching and revertive parameters for the Loop-V4300.

Table 9- 1 V4300 E1/T1 Protection Factors

Item	Switching Factors	Switching Condition	Revertive Condition
1	LOS (Loss of Signal)	LOS occurs	LOS disappears
2	LOF (Loss of Frame)	LOF occurs	LOF disappears
3	AIS (Alarm Indication Signal)	AIS occurs	AIS disappears
4	RAI (Remote Alarm Indication)	RAI occurs	RAI disappears



**AFFIDAVIT FOR CONNECTION OF CUSTOMER PREMISES EQUIPMENT  
TO 1.544 MBPS AND/OR SUBRATE DIGITAL SERVICES**

For the work to be performed in the certified territory of

Telco's Name: \_\_\_\_\_ S

State of: \_\_\_\_\_ S

Country of: \_\_\_\_\_ S

I, \_\_\_\_\_, of \_\_\_\_\_ S  
(Name Authorized Representative) (Customer Name)

\_\_\_\_\_, \_\_\_\_\_ d  
(Customer's Address) (Telephone Number)

being duly sworn, state:

I have responsibility for the operation and maintenance of the terminal equipment to be connected to 1.544 Mbps and/or \_\_\_\_\_ subrate digital service. The terminal equipment to be connected complies with Part 68 of the FCC rules except for the encoded analog content and billing protection specifications. With respect to encoded analog content and billing protection:

☐ I attest that all operations associated with the establishment, maintenance and adjustment of the digital CPE, with respect to the analog content and encoded billing information, continually complies with Part 68 of the FCC Rules and Regulations.

☐ The digital CPE does not transmit digital signals containing encoded analog content or billing information which is intended to be decoded within the telecommunications network.

☐ The encoded analog content and billing protection is factory set and is not under the control of the customer.

I attest that operator(s)/maintainer(s) of the digital CPE responsible for the establishment, maintenance and adjustment of the encoded analog content and billing information has (have) been trained to perform these functions by successfully having completed one of the following: (Check appropriate blocks)

☐ (a) A training course provided by the manufacturer/grantee of the equipment used to encode analog signals; or

☐ (b) A training course provided by the customer or authorized representative, using training materials and instructions provided by the manufacturer/grantee of the equipment used to encode analog signals; or

☐ (c) An independent training course (e.g., trade school or technical institution) recognized by the manufacturer/grantee of the equipment used to encode analog information; or

☐ (d) In lieu of the preceding training requirements, the operator(s)/maintainer(s) is (are) under the control of a supervisor trained in accordance with \_\_\_\_\_ (circle one) above.

I agree to provide \_\_\_\_\_ (telco name) with the proper documentation to  
(Telco's Name)  
demonstrate compliance with the information as provided in the preceding paragraphs, if so requested.

\_\_\_\_\_ (Signature)

\_\_\_\_\_ (Title) B

\_\_\_\_\_ (Date)

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ B

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_ d